Vol. III

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1938

No. 661

GENERAL ELECTRIC SUPPLY CORPORATION,
PETITIONER,

vs.

THE MAYTAG COMPANY

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE EIGHTH CIRCUIT

PETITION FOR CERTIORARI FILED FEBRUARY 9, 1939.

CERTIORARI GRANTED MARCH 13, 1939.

United States Circuit Court of Appeals

EIGHTH CIRCUIT.

No. 11,234

IN EQUITY.

GENERAL ELECTRIC SUPPLY CORPORATION,
APPELLANT,

vs.

THE MAYTAG COMPANY, APPELLEE.

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES
FOR THE WESTERN DISTRICT OF MISSOURI.

FILED JUNE 18, 1938.

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DEFENDANT'S EXHIBIT 35.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting.

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the

Letters Patent of

Howard F. Snyder, Assignor,
by mesne assignments, to
The Maytag Company,

Number 1,866,779, Granted July 12, 1932,

for

Improvement in Washing Machines.

U. S. D. C. W. D. Mo. W. D.
THE MAYTAG COMPANY
vs.
GENERAL ELECTRIC SUPPLY CORPORATION
IN EQUITY 2332.
DEFENDANTS EXHIBIT 35

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this nineteenth day of November, in the year of our Lord one thousand nine hundred and thirty-seven and of the Independence of the United States of America the one hundred and sixty-second.

ATTEST:

Chief of Division.

Commissioner of Patents.

1193

1866779

NUMBER (Series of 1915) 568158

PATENT NO.

DATED JUL 12 1932

DIV. 27 25

(EXT'S BOOK) Book 10 213 - 1/2

Name HOWARD E. SNYDER,

for mesne grant to The Maytag Company, of Newton, Iowa, a

Corp. of Iowa Delaware

of NEWTON,

State of IOWA,

Invention WASHING MACHINES.

ORIGINAL

FILED COMPLETE JUNE 14 1922

Application, Ser. No. 568,150, JUNE 14 1922

Deed Delaware

10

Issued July 12, 1932

Ex. Div. 25

Assignment recorded

5911

E.R (Series of 1915). 1922 (EX'R'S BOOK) 1197

58

DIV. 27 25 PATENT No.

Howard F. Snyder
Assr. to The Maytag Company of Newton, Iowa, a corp. of Iowa. Iowa

Newton

County

, Iowa

Washing Machines

ORIGINAL

June 14, 1922

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June 14, 1922

June 14, 1922

Issued for Issue , 1922

Ex. Div.

, 1922
By Commissioner.

, 1922

RENEWED

Wallace A. Lane - Marquette Bldg
Chicago

Claims Allowed

Issued

LAW OFFICE OF

PARKINSON & LANE

ROBERT H PARKINSON
WALLACE R LANE
GEORGE MANKLE
FREDERICK F MASON
HERRILL M BLACKBURN
RALPH H SNYDER

TELEPHONE RANDOLPH 3[illegible]
CABLE ADDRESS PARKINSON

MARQUETTE BUILDING

CHICAGO June 12th, 1923.

Hon. Commissioner of Patents,
Washington, D.C.

Sir:-

Enclose find the application papers of Howard F. Snyder, for patent on Washing Machines, together with three sheets of drawing, and check for twenty dollars ($20.00), to cover Government filing fees.

Very truly yours,

Wallace R. Lane.
B.

LLB-JO.
Encl.

568 1

979

PETITION

To the Honorable Commissioner of Patents:

Your petitioner Howard F. Snyder

a citizen of the United States residing at Newton

in the County of Jasper *State of* Iowa

whose Post Office Address is The Maytag Company, Newton, Iowa,

prays that Letters Patent may be granted to him *for*

WASHING MACHINES

as set forth in the annexed Specification.

And he *hereby appoint* Wallace R. Lane, *of Chicago, Illinois,* REGISTRATION No. 4888, his *Attorney, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the Patent and to transact all business in the Patent Office connected therewith.*

Signed at Newton *in the County of* Jasper *and State of* Iowa *this* 6th *day of* June *19*

INVENTOR'S FULL NAME: Howard F. Snyder

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SPECIFICATION

TO ALL WHOM IT MAY CONCERN:-

Be It Known That I, Howard F. Snyder, a citizen of the United States, residing at Newton, Iowa, have invented certain new and useful improvements in

WASHING MACHINES

of which the following is a specification.

The present invention relates to a power driven washing machine and more particularly to the construction of the gyrator or impeller and tub thereof and the gyrator or impeller operating mechanism for such machine.

Among the objects of the invention is to provide a novel construction designed to wash and thoroughly cleanse clothes, fabrics and various similar materials of all kinds, which is equally efficient in washing fabrics, and other similar materials of a very delicate nature, that may have become frail and weak owing to aging, wear and otherwise. Among such delicate materials are included fine laces, nettings, veils, fine silks, lace curtains and various other articles. Very often valuable articles, relics, heirlooms and other objects of great value are composed partly or wholly of fine and frail textures, such that they cannot be easily washed when soiled, since their nature would not permit subjecting them to the rigors of the ordinary washing machine operation, or even washing by hand. By my invention, the washing and cleansing of such objects is not only made possible, but practicable, such that most delicate

and frail objects can be handled mechanically during the washing operation without ~~in the least~~ marring their character and beauty. By reducing friction on the articles to be washed the life of the article is preserved. These and the other objects of the invention, are attained by so constructing and associating the tub and the gyratator of the washing machine, and so operating the gyratator, that the weight of the articles does not interfere with the gyratator, or its action, or with the tub and its co-action with the gyratator. ~~In washing machines it has been~~ previously impossible to satisfactorily use upstanding or depending dollies located at the bottom of the tub, for the weight of the clothes, goods or other materials undergoing a washing operation, tends to oppose the action of the dolly and render it ~~entirely~~ inoperative or result in the tearing or tangling of the clothes. ~~In my invention the gyratator and tub~~, in my invention, co-act that the goods to be cleaned are not only given a definite washing and cleansing movement, but are also maintained, during such movement, in a suspended condition in the liquid so that the rapid and energetic alternating rotary movements of the gyratator do not interfere with the goods ~~as to~~ or cause them any injury or damage, while at the same time the goods and the wash water, (or the rinse water, when rinsing), are turbulently swirled or whirled about with a surging and seething movement within the tub. To this end the tub preferably has a smooth interior not interrupted by flanges or other projections, and preferably has, ~~together with~~ the bottom portions so associated with the gyratator and the remainder of the tub as to cooperate therewith in the manner

As another object of the invention, the gyrator is provided with flanges which, during the alternations thereof, act to successively impart movement to the contents of the tub, such that the resultant direction of movement of the contents is normally radially outward from the central portion of the tub, then upwardly, then inwardly and then downwardly toward the center of the gyrator, and yet at the same time there is a generally rotary progression or movement about the inside of the tub, such movement being in the nature of a gyratory action or movement and appearing to be that of a helix around a ring. In this way the goods or objects undergoing the washing are thrown about while at the same time the wash water or cleansing fluid is being vigorously agitated and vigorously moved about the tub, also in devious paths, and also to sustain the washable materials whereby they will not be injuriously affected by the gyrating operating or actuating mechanism which may be readily thrown into and out of operative connection with the gyrator by resilient means, tending to normally render the gyrator inoperative but yielding to render the same operative when manually actuated; to provide a combined means for guarding against the inadvertent contact or interference with the driving mechanism of the washing machine and means for locking the driving [illegible] constantly [illegible] unit; and to provide other features [illegible] advantages and capabilities [illegible] more fully appear.

Due to the construction and arrangement of the tub, gyratator and driving mechanism, this machine accomplishes a decidedly new result, in that while the clothes are washed thoroughly, this is done by the action of the water itself on the materials as distinguished from their being rubbed or drawn through the water by a dolly or other mechanism, or tumbled against the sides of the tub or rubbed against projections on the interior of the tub. In my machine the clothes are driven and swirled about in and by the water in the interior of the smooth tub. The materials never come in any substantial contact with either the tub, or the gyratator which initally causes the agitation, seething and surging of the water on the interior of the tub. The peculiar movement of the water caused by the action of my gyratator in operation largely prevents rubbing the clothes against the container or gyratator and eliminates the deterioration of the materials being washed by it. These and other advantages which I find it difficult to explain because of the unusual movement of the water are possessed by my machine.

In the drawing illustrating a preferred form of the invention:-

Fig. 1 is a vertical sectional view taken through the washing machine.

Fig. 2 is a horizontal sectional view taken through the tub, showing the gyratator in top plan view.

Fig. 3 is a sectional view showing portions of the operating mechanism

Fig. 4 is a detail vertical sectional view on an enlarged scale of the bottom of the tub, the gyratator, part of the gyratator operating mechanism and the packing means for the bearing of the gyratator shaft.

Fig. 5 is a detailed sectional view of the driving connection between the gyratator and the driving mechanism therefor.

Fig. 6 is a top plan view of the removable plate at the bottom of the tub, with the gyratator removed.

Referring more particularly to the drawing the washing machine comprises a tub 1 supported upon and fastened to legs 2 having roller casters 3. To the legs 2 is secured a platform 4 upon which is supported a motor 5 bolted to an insulating base piece 6 in turn bolted to the platform 4. The legs 2 have telescopic sections 7 of tubular form slidable in clamp portions 8, forming part of the legs 2, for the purpose of adjusting the height of the washing machine, the sections 7 being held in adjusted position by means of set screws 8. The motor 5 is connected to the driving mechanism by means of a belt 9 running over a pulley 10 fixed to the motor shaft and a driven pulley 11 fastened to a cross shaft 12 carrying a worm screw 13 in mesh with a worm gear 14 keyed to a vertical shaft 15. The gear mechanism 13-14 is suitably housed in a housing 16 bolted to and forming part of one of the supporting legs of the washing machine.

Between the motor 5 and the gear mechanism 13-14 extends an aluminum belt guard 17 which encases the belt 9 and pulley 10 and 11, the guard having a flange 18 extending over the upper lap of the belt and the pulley 10. By this means ~~In this way~~ accidental contact with the driving belt 9 and pulleys 10 and 11 is prevented. The guard has a hub portion 19 by which it is ~~rotatably~~ pivotally supported upon a part of the shaft 12 between the bearings 20 and 21 formed in the housing 16 ~~for such a shaft~~. To an intermediate part of the guard is fastened a pivot stud 22 upon which is idly and rotatably carried a belt tightener roller 23. It will be noted that this guard is supported only by the shaft 12 and the roller 23 bearing upon the upper lap of the belt 9, so that the guard is capable of an upward and downward swinging movement about the axis of the shaft 12 as the belt becomes taut or slack. The amount of the tautness given the belt, as the roller 23 presses against it, is derived from the combined weight of the guard, with the parts carried by it, and a tension spring 24 connected between and to the guard 17 and the platform 4, the tension of the spring adding to the weight of the guard to maintain the roller 23 in tightening contact with the belt.

In vertical alinement with the shaft 15 is a second shaft 25, rotatably supported in suitable bearings 26 and 27 respectively, forming parts of the crank and gear housings 28 and 29, ~~the former of which~~ said housing 28 is rigidly connected to the tub by means of a bracket 30 and bolts 31 and 32 and, ~~forming~~ including the top and

intermediate members 33 and 34 of the housing 16, ~~and the latter (housing 29) of which~~ the housing 29 is rotatably supported upon a ledge 35 rigidly bolted to the side of the tub 1 and also made fast to the top of the tub through a bolted bracket 35'. A tube 36 is connected between the members 33 and 29 and houses the shaft 25. The shaft 25 drives a wringer 37 through the medium of clutches 38, 39 and 40, and gears 41, 42, and 43, which may be manually and selectively controlled through the handle 44 for causing the operating of the wringer in any direction desired and in whatever position the wringer may be have relative to the tub. The wringer is capable of swinging into different positions with respect to the tub, about the axis of the shaft 25, and to be held in any of its positions by a spring pressed locking pin 45 cooperative with recesses in the ledge 35. The details of the mechanism for operating the wringer ~~are understood and inasmuch as they~~ do not form part of this invention, and therefore, further description thereof is deemed unnecessary.

The tub 1 is preferably substantially square in horizontal cross-section and is shallow with respect to its horizontal dimensions. It has a central bottom portion 46, an inclined portion 48 and vertical side walls 49. It may, however, be of other form than square and the inclined portion 48 may be omitted. In the present disclosure the bottom 46 of the tub 1 has a circular opening which is normally closed by a plate 47 bolted to the bottom 46. The radially extending portion 48 at the bottom 46

inclines upwardly toward the vertical side of walls 49 of the tub for a purpose hereafter described. The plate 47 supports the gyratator 51, the packing means for the gyratator shaft 52 and part of the operating mechanism for the gyratator. The gyratator is of sheet metal preferably aluminum, and is of generally circular form, when viewed in plan. It has a hollow central cone or conoidal shaped portion 53, an annular trough portion 54 and an upwardly inclined peripheral portion 55. Extending radially from the central portion 53, and formed integral herewith and with the trough and peripheral portions 54 and 55, are vertial flat blades or flanges 56 of the shape clearly shown in Fig. 4 of the drawing. In the embodiment shown there are four of these blades, but any other number may be used as desired. Within the central stem portion 53 and depending from the apex 57 thereof is a hollow pyramidal socket 58, preferably square in horizontal section. It is adapted to fit upon a square pyramidal block or step 59 socketed to fit upon the upper end of the shaft 52 and secured to said shaft, to positively rotate therewith, by a cross pin 60 extending transversely through the shaft. At the upper end portion of the step 59 is formed an annular groove 61 in which reposes a spring lock ring 62 adapted, when the gyratator is forceably moved downwardly upon the step 59, to expand into an annular groove 63 formed in the apex portion 57 of the gyratator. The uppermost end 64 of the step is squared to fit into a like aperture formed into the apex 57. The lower end of the socket may be provided with notches into which the ends of the cross pin 60 may extend, if desired. The various gyratator portions, namely, the apex, trough, peripheral, blade and pyramidal portions all are preferably integral.

The shaft 52 is fixed to a pinion 65 by means of a key 66, and has bearings 67 and 68 respectively formed in the plate 47 and in a bracket 69 bolted to the underside of the plate 47. These bearings have bushings 70 and 71, preferably of brass or bronze. The pinion 65 is in thrust bearing with the ends of the bearings 67 and 68, and clamping bolts holding the bracket 69 in place such that the pinion 65 has no loose play, yet it is permitted to freely rotate or oscillate. The lower end of the shaft 52 has a grease cup 72 operative to supply a lubricant through bores 73, 74, and 75 to the bearing surface between the shaft 52 and bushings 70 and 71. The bracket has an arm 76 upon which rests and freely slides reciprocating rack 77 adapted to mesh with the drive pinion 65, the other end or crank arm portion 81 of the rack being pivotally connected to a crank pin 78 fixed to crank arms 79 and 80 fastened to the ends of the shafts 15 and 25.

The rack 77 may be thrown into or out of operative engagement or mesh with the pinion 65 at will. This is accomplished by the mechanism shown in Fig. 3. Upon the end of the arm 76 is pivotally supported a bell crank lever 83 carrying at one of its ends a roller 84 bearing against the rear face of the rack 77 and being apertured at its other end to receive a bent end of a link 85 running to a crank arm 86 having its free end also apertured to receive the other bent end of the link, the link being thus pivotally connected to said lever 83 and arm 86. The arm is fast to a vertical shaft 87 rotatably supported in bearings 88 and 89 respectively rigidly secured to a leg 2 and the side of the tub 1 (see Figs. 3 and 1). To the upper end of

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the shaft is fastened a handle 90 by which the lever 83, through the media of link 85, arm 86 and shaft 87 may be forced against the rack to cause the latter to engage with the pinion 65. A spring 91 is connected to the end of the rack 77 and a fixed part of the washer, as a leg 2 thereof, for the purpose of automatically disengaging the rack from the pinion and to hold the rack away from the pinion when the handle 90 is shifted to throw the lever 83 out of operation and thus stop the oscillation or rotation of the gyratator. The spring constantly tends to hold the rack away from the pinion and against the roller 84, the rack being thrown into mesh with the pinion only when the lever 83 and roller 84 are moved to positively shift the rack into enmeshment. The rotation of the crank 79-80 will cause a reciprocation of the rack over the arm 76, whether or not the rack be in engagement with the pinion. When the rack is moved into mesh with the pinion, the latter is caused to alternately rotate, or angularly oscilliate, and hence the gyratator in the tub.

For the purpose of packing the gyratator shaft 53 the plate 47 and the bracket 69 are provided with communicating chambers adapted to hold a packing material 92, preferably composed of chopped or shredded and comminuted asbestos, graphite and oil. The packing space comprises an annular chamber 93 surrounding the shaft 52 between the bearings 67 and bushing 70, and a washer or packing 94, preferably of leather, in the opening at the top of the chamber 93 and located between the bottom end 95 of the step 59 and the packing material in the chamber 93. The chamber 93 extends through a passage 96 to a plunger chamber 97.

The lower portion 98 of the latter has a screw threaded aperture in which operates a screw plunger 99 having at its outer end a winged finger piece 99, which may be manually rotated to feed the plunger into the chamber 97 against the packing 93. The packing 93 is somewhat plastic and is in a sort of fluidal state so that the stress applied to it by the forceful entry of the screw plunger into the chamber 97 will cause the packing 93 to flow through the passage 96 to the chamber 93 and completely fill the space of the latter. In this way compensation for any loss of packing owing to wear, leakage and otherwise is readily made. Leakage of wash water or cleansing fluid from the tub around the shaft 82 is prevented by this novel packing means.

The open top of the tub is normally closed by a ~~hinged~~ cover 101 having a hinge 102 at one side and a finger grip piece 103 at the other side.

At one side of the tub is secured a liquid soap dispenser comprising a reservoir 104 fastened to the wall 48 by bolts 105 and adapted to contain a relatively large supply of soap. To this chamber is connected a measuring pump 106 ~~constructed to draw~~ into the upper portion of which is drawn by suction a charge of fluid soap from the piston and piston rod 107, and ~~a discharge of the charge~~ upon a downward movement of the piston and rod, discharged into the tub through a discharge tube or nozzle 108 so located that the ejected charge will be in general direction of the movement of the mass of material and cleansing solution within the tub during the washing operation.

When the gyratator is alternately rotated or oscillated and with a mass of material to be cleansed and the cleansing fluid in the tub, the liquid mass is given a radially outward movement, then an upward movement owing to the shape of the trough 54 and the inclination of the periphery 55 and the wall 48, then an upward movement toward the upper part of the tub, then an inward movement, then a downward movement in the center of the tub toward the cone 53 of the gyratator, the liquid mass also progressing, in its whirling action, about the tub, so that the resultant motions are substantially a gyratory one, as a helical movement about a ring having a circular cross-section. In this way the washing and washable materials are given a turbulent swirling action. At or before the start of the operation, and during the operation of the machine, as desired, charges of liquid soap may be ejected into the moving mass in the tub.

The plate 47 has a drain port 109 with which may be connected a hose normally supported at its free end at one side of the machine but which may be lowered to drain the tub of its contents. The plate 47 is formed with a shallow depression 110 surrounded by the flange 50 and having an inclined bottom 111 extended from one side to the other of the shaft 52 and chamber 93, in order to permit efficient drainage of the fluids in the tub through drain port 109.

It is of course understood that the specific description of structure set forth above may be departed from without departing from the spirit of my invention as set forth in this specification and the appended claims.

Having now described my invention.

I CLAIM: Add F' cl. 1

1. In a washing machine comprising a driving power means, the combination of a tub for containing wash water and goods to be washed, an alternating rotatory gyratator in said tub and acting upon the contents of said tub to cause a substantially gyratory movement of said contents.

2. In a washing machine comprising a driving power means, the combination of a tub for containing wash water and goods to be washed, an alternating rotatory gyratator in said tub, said gyratator having upstanding means operating to effect a substantially gyratory movement of the contents of the tub.

3. In a washing machine, ~~comprising a driving power means~~, the combination of a tub containing wash water and goods to be washed, an alternating rotatory gyratator in said tub, said gyratator being provided with ~~upstanding~~ flanges operative to cause a substantially gyratory whirling movement of the contents of said tub.

4. In a washing machine comprising ~~driving power~~ means, the combination of a tub for containing a cleansing substance and materials to be cleansed, and an oscillating gyratator, said gyratator comprising flanges operative to cause ~~an outwardly and upwardly swirl of~~ said materials and the cleansing substance.

5. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, an oscillating gyratator having radially extending flanges operative to cause an outwardly and

upwardly swirl of said materials and the cleansing substance.

6. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, an oscillating gyratator, and an oscillating mechanism connected to said power means operable to oscillate said gyratator, said gyratator comprising flanges operative to cause an outwardly and upwardly swirl of said materials and the cleansing substance.

7. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, an oscillating gyratator, and an oscillating mechanism connected to said power means and operable to oscillate said gyratator, said gyratator comprising flanges operative to cause an outwardly and upwardly swirl of said materials and the cleansing substance, and manually movable means for operatively connecting and disconnecting said oscillating mechanism to and from said gyratator.

8. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, said tub having an upwardly inclined portion, an oscillating gyratator cooperative with said inclined portion for forcing said materials and cleansing substance toward said inclined portion.

9. In a washing machine comprising driving power means, the combination of a tub containing wash water and goods to be washed, an alternating rotary gyratator in said tub, said tub

having a flared portion, said gyratator and flared portion cooperating to swirl said wash water and goods with a substantially gyratory movement.

10. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, said tub having ~~an upwardly inclined smooth portion~~ relatively smooth walls inclined outward, an alternating rotary gyratator actuated by said power means, and cooperative with said inclined portion for forcing said materials and cleansing substance upwardly toward and by said inclined portion.

11. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, said tub having an ~~upwardly~~ outwardly inclined wall and an adjoining vertical wall side portion, an alternating rotary gyratator cooperative with said inclined side portion ~~for forcing said materials and cleansing substance toward said inclined side portion~~, said gyratator comprising a plurality of flanges operative to cause ~~an outwardly and upwardly swirl of said materials and cleansing substances~~.

12. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, a ~~gyratator~~ liquid impeller, mechanism driven by said power means for oscillating said ~~gyratator~~ liquid impeller, said ~~gyratator~~ liquid impeller having flanges and a radially depressed portion operative to upwardly swirl said cleansing substance and material.

13. In a washing machine comprising a driving power means, the combination of a tub for containing washing and

568 1.

washable materials, a liquid impeller, means operable to alternately rotate said liquid impeller, said liquid impeller being provided with upstanding flanges and depressed portions on each side of and between said flanges and operative to swirl said materials with a substantially gyratory movement.

14. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, a gyratator, mechanism driven by said power means for alternately rotating said gyratator, said gyratator having ribs and a radially depressed portion operative to upwardly swirl said cleansing substance and materials, said tub having an upwardly inclined portion adjacent the periphery of said gyratator and cooperative with said gyratator for effecting the swirl of said cleansing substance and material.

15. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, a gyratator, mechanism driven by said power means for alternately rotating said gyratator, said gyratator having upwardly extending flanges and a radially depressed portion operative to upwardly swirl said cleansing material and substance.

16. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, a liquid impeller, mechanism driven by said power means for alternately rotating said liquid impeller, said liquid impeller having upwardly and radially extending flanges and a

radially depressed surface operative to upwardly swirl said cleansing substance and materials.

13 & 14. In a washing machine comprising driving power means, the combination of a liquid impeller operated by said means, a tub for containing water and goods to be washed, said tub being relatively shallow with respect to its horizontal dimension, said liquid impeller above the gyratator operable to maintain said goods in suspension in the water while being swirled about said tub with said water.

18. In a washing machine comprising driving power means, the combination of a gyratator operated by said means, a tub for containing wash water and goods to be washed, said tub being formed from a sheet of material and being substantially square in cross section and relatively shallow, said gyratator operable to swirl said water and goods with a substantially gyratory movement in said tub.

14 to 16. In a washing machine comprising driving power means, the combination of a liquid impeller operated by said means, a tub for containing wash water and goods to be washed, said tub having a tapered lower portion, said liquid impeller a gyratator and tub cooperating to swirl said water and goods with a substantially gyratory movement in said tub.

9 & 14 to 16. In a washing machine comprising driving power means, the combination of a tub adapted to contain washing and washable materials, a liquid impeller gyratator in said tub and operated by said means, said liquid impeller gyratator having a centrally raised portion and radially depressed portion, and operable to swirl said materials with a substantially gyratory movement.

56S 19

10 12 21. In a washing machine having driving power means, the combination of a tub adapted to contain washing and washable materials, a ~~gyratator~~ liquid impeller in said tub and operated by said means, said ~~gyratator~~ liquid impeller having a centrally raised portion, a radially depressed portion and flanges extending radially from said centrally raised portion, said ~~gyratator~~ liquid impeller operable to swirl said materials with a substantially gyratory movement in said tub.

11 ~~13~~ 22. In a washing machine having driving power means, the combination of a tub adapted to contain washing and washable materials, a ~~gyratator~~ liquid impeller in said tub and operated by said means, said ~~gyratator~~ liquid impeller having a central conoidal portion, an inclined peripheral portion and an intermediate trough portion, said ~~gyratator~~ liquid impeller operating to swirl said materials with a substantially gyratory movement in said tub.

23. In a washing machine comprising driving power means, the combination of tub for containing a cleansing substance and materials to be cleansed, a gyratator, mechanism driven by said power means for alternately rotating said gyratator, said mechanism comprising a reciprocating member, manually movable means for operatively connecting and disconnecting said oscillating member to and from said gyratator.

14 24. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, a ~~gyratator~~ liquid impeller, mechanism driven by said power means for alternately rotating said ~~gyratator~~ liquid impeller, said

mechanism comprising a reciprocating member, manually movable means for operatively connecting and disconnecting said reciprocating member to and from said ~~gyratator~~ liquid impeller, and means normally tending to hold said reciprocating member disconnected from said ~~gyratator~~ liquid impeller.

25. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, a ~~gyratator~~ liquid impeller, mechanism driven by said power means for alternately rotating said ~~gyratator~~ liquid impeller, said mechanism comprising a reciprocating member, manually movable means for operatively connecting and disconnecting said reciprocating member to and from said ~~gyratator~~ liquid impeller, and resilient means normally tending to hold said reciprocating member disconnecting from said ~~gyratators~~ liquid impeller.

~~26. In a washing machine comprising driving power means, the combination of a tub for holding a cleansing fluid and materials to be cleansed, a gyratator for giving said substance and materials a turbulent motion, said power means comprising a belt, and a movable belt guard having a tightener pressing against said belt.~~

27. In a washing machine comprising driving power means, the combination of a tub for holding a cleansing fluid and materials to be cleansed, a gyratator for giving said substance and materials a turbulent motion, said power means comprising a belt, ~~and~~ a pivotally supported guard having a tightener pressing against said belt.

28. In a washing machine comprising driving power means, the combination of a tub for holding a cleansing fluid and materials

to be cleansed, a gyratator for giving said substance and materials turbulent motion, said power means comprising a belt, and a movable guard having a tightener resiliently pressing against said belt, and a spring connected to said guard for holding said tightener against said belt.

18 to 39. 12 In a washing machine comprising driving power means, the combination of a tub for holding a cleansing fluid and materials to be cleansed, a ~~gyratator for giving said substance and materials turbulent motion,~~ liquid impeller a drain plate at the bottom of said tub and having a ~~said tub having an inclined~~ sloping bottom portion extending from one side to the other of the center of said tub, and an eccentrically located drainage connection attached to said inclined portion.

A3 cl. 13

IN WITNESS WHEREOF, I hereunto subscribe my name to this specification in the presence of the witnesses.

Howard F. Snyder
Inventor

WITNESSES:

OATH

STATE OF Iowa }
COUNTY OF Jasper } ss:

Howard F. Snyder, the above named petitioner, being duly sworn, deposes and says that he is a citizen of the United States, and a resident of Newton, in the County of Jasper and State of Iowa; that he verily believes himself to be the original, first and sole inventor of the improvements in

WASHING MACHINES

described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof; or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application; or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvements has been filed by him or his representatives or assigns in any country foreign to the United States.

Inventor's full name Howard F. Snyder

Subscribed and sworn to before me this 6th day of June A. D. 1922

Josephine M. Hatch
Notary Public

My Commission expires [illegible], 1924

568 23

Div. 25 Room 315 Paper No. 2

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name.

JCS:GB

All communications concerning this application should give the serial number, date of filing, name of inventor, and name of the applicant.

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

1245

WASHINGTON July 18, 1922

PATENT OFFICE JUL 18 1922 MAILED.

Wallace R. Lane,
Marquette Bldg.,
Chicago, Ill.

Please find below a communication from the EXAMINER in charge of the application of

Howard F. Snyder, filed June 14, 1922, Ser. No. 568,158

Washing Machines

Thomas E. Robertson
Commissioner of Patents.

This application has been examined.

Throughout the specification and claims "gyratator" should be gyrator.

In the claims "upwardly and outwardly swirl" should be upward and outward swirl.

In the last line of claim 25 "disconnecting" should be disconnected.

Claims 1 to 6, 8 to 11 and 17 to 20 inclusive are rejected in view of

Mills et al., Nov. 24, 1914, 1,118,210 (68-15).
Nielsen, Aug. 20, 1918, 1,276,254, (259-108).

Claims 7, 23 and 24 are rejected in view of Mills et al. and Nielsen taken with

Beckwith, Apr. 1, 1919, 1,298,645, (259-101).

Claims 26, 27 and 28 are rejected in view of Mills et al. and Nielsen taken with the fact that there is no patentable combination between a particular agitator and a belt tightener.

Claim 29 is rejected in view of Mills et al. and Nielsen taken with

Werner, Mar. 16, 1909, 915,139, (259-108).

showing a drain opening.

J. C. Stanford Exr.

1247
F3a

IN THE UNITED STATES PATENT OFFICE

In Re-Application of
HOWARD F. SNYDER,
Serial No.568,158,
Filed June 14, 1922,
Div. 25, Room 315.

WASHING MACHINES

A M E N D M E N T

October 11,1922.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

In response to the Office Action of July 18, 1922, in the above entitled application, the applicant amends as follows:

In the Specification on page 4, after line 19, insert- the following paragraph:-

a' "By the term gyratator is meant an alternating rotary member operable to effect movements of fluids and materials from the central portion of the member toward its outer edge or borders."

Claim 4, line 4, change "outwardly" to-- outward; and line 5, change "upwardly" to-- upward.

Claim 5, line 4, change "outwardly" to-- outward; and line 5, change "upwardly" to-- upward.

Claim 6, line 5, change "flanges" to-- a base member and flanges and being; and line 6, change "outwardly and upwardly" to--outward and upward.

Claim 7, line 6, change "outwardly and upwardly" to-- outward and upward.

Claim 8, line 6, change "toward" to-- upwardly toward and by.

Claim 9, line 3, after "gyratator" insert-- having a depressed portion being located.

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Claim 10, line 6, change "toward" to-- upwardly toward and by.

Claim 11, line 7, after "comprising" insert-- a base member and; and in line 8, change "outwardly and upwardly" to-- outward and upward.

Claim 17, line 5, after "suspension" insert-- above the gyratator.

Claim 18, line 4, before "substantially" insert-- formed from a sheet of material and being.

Claim 19, line 4, change "and tub" to-- having a flared portion, said tapered and flared portions.

Claim 25, line 9, change "disconnecting" to-disconnected.

Claim 29, line 4, change "said tub having an" to-- a drain plate at the bottom of said tub and having a; and in line 5, change "inclined" to--sloping.

Please add the following claims:-

30. In a washing machine comprising a driving power means, a tub, an alternating rotary gyratator actuated thereby and having a base portion and projecting above and means on said base portion, ~~said base portion and means operating~~ above the base portion on the contents of the tub to give the contents a gyratory movement.

31. In a washing machine comprising a driving power means, a tub, an alternating rotary gyratator actuated thereby and having a generally horizontal base portion and upstanding members on said base portion, said base portion and upstanding members operating on the contents of the tub to give the contents a gyratory movement.

32. In a washing machine comprising a driving power means, a tub, an alternating rotary liquid impeller gyratator, having a plate formed with an annular depression, a raised central portion and upstanding flanges in said depression, said plate, depression, central portion and flanges operating on the contents of the tub to give the contents a gyratory movement.

D4 cl. 14 561 26

20
48, 53. In a washing machine comprising driving power means, a tub, a gyratator therein and operated by said means, the gyratator and tub having cooperating flared portions for upwardly swirling the contents of the tub.

liquid impeller

liquid impeller

Per D
Per D
Insert 1
D 4
Insert B

R E M A R K S

The term "gyratator" is defined in the specification by amendment. It is believed the use of this word is not objectionable. The Examiner will note that this particular member has entirely different actions than the usual form of dollies used in washing machines, and the use of a new term is necessary to describe it and its peculiarities.

The claims have been amended to correct the use of the word "upwardly" and "outwardly" as well as the word "disconnecting".

The action on the claims has been carefully examined, some of the claims having been amended to more clearly define the invention, and new claims added to more adequately protect the invention.

In regard to the rejection of claims 1 to 6, 8, to 11 and 17, to 20 inclusive, upon the patents to Mills and Nielsen, it is believed that the Examiner did not understand the terminology of these claims. In all of these claims, the structure calls for an alternating rotary gyratator, defined in the specification. The action of this gyratator is stated as acting upon the contents of the tub so as to cause a substantially gyratory movement of the contents. This is not true of the Mills and Nielsen construction. In the Mills construction, it is clear that the members 48 merely act, as an ordinary agitator, and they cannot act to cause a gyratory movement of the contents. It is believed that these claims, as originally presented, cover allowable subjects-matter, when the terms are given the meanings intended therefor from the disclosure of the specification. In the Nielsen patent there is shown a mere stirrer. It is not

568 2.

a washing machine member. The stirrer is operable on liquids and semi-solids, so as to thoroughly agitate or mix the same in the vessel. There is nothing in this patent suggesting the idea of a washing machine structure, nor the actions pertaining to a washing operation in a washing machine. It will be noted that the bottom of the vessel in the Nielsen construction is connected with a pipe for the introduction of liquid beneath the agitator 30. The agitator 30 is in the form of an ordinary set of blades which act upon the contents of the vessel to merely agitate such contents. In Fig. 1 of the patent is shown a set of arrows indicating the movement of the liquid by the action of the agitator, a large portion of the contents flowing downwardly in the bottom of the tub and upwardly into the spaces between the blades of the agitator. This is an entirely different action from that shown in applicant's drawing. It is believed that the structure called for in the claims above mentioned are clear from the structure shown in the Nielsen patent. Moreover, it will be noted that the Nielsen device relates to non-analogous art. In this connection, attention is directed to the decision of Hobbs vs Beach, 94 O. G. 2357, in which the Court held that a machine for attaching gummed strips to the corners of paper boxes is not anticipated by a machine for feeding, cutting and pasting address slips to newspapers, although by strengthening it and changing it in certain particulars it could be adapted for such use, and also that while there is an analogy between the two machines, there can be scarcely said to be a similarity in the functions of the machines. The same applies in the comparison of the Nielsen structure with the washing machine disclosed by the applicant. It can hardly be said that the functions of the two machines are similar, although there might be some analogy

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in the appearance of parts of the machines as depicted on the drawings. It is therefore believed that the language in the last three lines of claims 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, and 17, the last four lines of claim 18 and the last three lines of claim 19 and 20, sufficiently distinguish applicant's construction from the prior art. It is requested that these claims be allowed.

It will be noted that claim 3 calls for the gyrotator having upstanding means operative to cause the gyratory whirling movement of the contents of the tub. There is no such structure as this in the prior art nor any structure that has the same functions. Claim 4 calls for these upstanding means being in the form of flanges. Claim 5 calls for radially extending flanges. Claim 6 has been amended to include the idea of a base member together with flanges which operate in the manner stated in the last two lines of the claim. Claim 8 has been slightly amended to more clearly define the cooperation between the gyrotator and the inclined portion of the tub, as forcing the materials and cleansing substance upwardly toward and by the inclined portion. Claim 9 has been amended to include a depressed portion in the gyrotator stated to be located in the tub, this last portion of the tub so cooperating with the gyrotator and the parts thereof to cause the gyratory movement mentioned in the last three lines of the claim.

The last line of claim 10 also includes the idea of the materials being forced upwardly toward and by the inclined portion of the tub. In claim 11 the gyrotator is stated to have a base member and flanges, both of which cooperate to produce the swirling action mentioned in the last two lines of the claim.

Claims 12, 13, 14, 15, and 16 are stated to be allowed.

In claim 17, the goods is stated to be held in suspension above the agitator. It will be noted in the Nielsen construction that the contents of the vessel is not held above the agitator, but is caused to move bodily through a considerable space between the agitator and the side of the vessel, and partly toward the bottom of the vessel so that the same may pass upwardly between the blades of the agitator. It is clear that in such structure the contents of the vessel, if they were goods to be washed would receive very severe and injurious treatment. The two devices certainly cannot act in the same manner nor for the same purposes.

Claim 18, states the tub as being formed from a sheet of material and being substantially square in cross section and relatively shallow. This combination of elements is not found in the prior art. It may be true that the Mills tub appears to be a shallow tub, but it is not a tub of the same construction as called for in this claim. That tub apparently is a built-up tub from separate pieces requiring special joining to prevent leakage. Applicant's tub is formed from a single sheet of material. It is believed that applicant's tub is more efficient, more economical, and has a greater life than the type of tub shown in the Mills patent.

In claim 19, the agitator is stated to have a flared portion, which together with the tapered portion of the tub causes the particular swirling action defined in the last three lines of the claim. This construction as well as the functions stated are not present in the prior art.

The rejection of claim 20 is probably an oversight. This claim calls for a agitator having a centrally raised portion and a radially depressed portion, and operable to produce the functions stated in the last two lines of the claim. This construction is not found in the prior art, and in view of the allowance of the other claims, it is believed that this

SEE 30

claim should also have been allowed. An allowance thereof is requested.

The rejection of claim 7, upon the patents to Mills, Nielsen and Beckwith, requires the combination of at least three references to make out an alleged anticipation. This is not in accordance with the general practice. This claim calls for, among other elements of the claim, manually movable means for operatively connecting and disconnecting the oscillating mechanism to and from the gyrotator. This construction is not present in the Beckwith patent. The oscillating rock 15 in the Beckwith construction, which corresponds more nearly to the applicant's rock 77, is not movable, manually or otherwise, for connection to and disconnection from the gyrotator, or for connecting and disconnecting the oscillating mechanism to and from the gyrotator. In Beckwith's construction the wheel 26 is fixed to a shaft 27 upon which is also carried a gear 28, the shaft being supported upon the ends of a pair of arms 32, connected to a foot treadle or pedal. When the arms 32 are operated by the foot, the shaft 27, wheel 26 and gear 28 are moved upwardly to engage the gear 28 with the gear 21. The operation of the rock is not produced by any power mechanism, as called for in the beginning of the claim, but is manually operated from the hand lever 16. The wheel 26 together with the connecting gearing to the handle 16 apparently is for the purpose of fly-wheel effect. The mechanism itself is not a power operating means for operating the dolly 13 through the rock 15, the operation of the dolly being derived wholly from the lever 16 by a manual operation thereof. It is therefore submitted that this construction cannot be combined with the other constructions mentioned by the Examiner and reorganized and reconstructed for the purpose of making

a construction like that claimed by the applicant. Such combination of references is not in accordance with the practice. It is therefore requested that this claim be allowed.

Claims 21 and 22 stand allowed.

The above remarks regarding the rejection of claim 7 and the non-pertinence of the references thereto, also apply to the rejection of claims 23 and 24. These claims call for the same means for movably connecting and disconnecting the oscillating members to and from the gyratator, claim 24 also calling for means for normally tending to hold the reciprocating member disconnected from the gyratator. These features are not present in the prior art.

Claim 25, with the corrections made thereto, now stand allowed.

The rejection of claims 26, 27 and 28 is not clear. It is submitted that there is a combination between the various elements stated in these claims. The action of the gyratator must be a smooth action, such that it will not be irregular or have the tendency of causing the gyratory movement of the contents of the tub to move in non-uniform movements. As for example, if very delicate material such as lace curtains and the like are being washed, and if the gyratator were to operate irregularly or at improper speed, the materials being washed would travel faster at certain instants of operation than others, and thus subject the material to injury as by tearing or otherwise. By having a properly constructed belt-tightener, so that the gyratator will work uniformly and evenly, the materials will be acted upon smoothly without danger of being torn or injured. It is submitted that there is a proper and legitimate combination between all the elements stated in these claims. Inasmuch as there is nothing of this kind in the prior constructions, it is submitted that these claims cover allowable subject-matter.

The references cited do not approach the idea of invention called for by these claims.

Claim 29 has been amended to more clearly define the drain part of the tub, by including a drain plate at the bottom of the tub and having a sloping bottom portion in the plate, extending from one side to the other of the center of the tub. The Werner construction does not have any such feature. The Werner device is a cream-breaker and melter and pertains to non-analagous art. The vessel in that construction is of substantially hemi-spherical form and has no special provision at the bottom for receiving drain water and for conducting drain water to a low point where it may pass off through an opening. It may be true that there is a pipe 8 which may act as a drain member, but this does not cover all of the elements called for in the claim.

New claims have been added to more adequately cover applicant's invention. These claims call for the gyratator having a base portion with means thereon which operate together to effect the operations and functions stated in the last two or three lines of these claims. Claim 31 calls for the base portion having upstanding members, while in claim 32 these members are defined as "upstanding flanges". Claim 33 calls for the gyratator and the tub both having flared portions which operate to upwardly swirl the contents of the tub. These features are not part of the prior art.

From the above remarks and changes, it is believed that the claims will now be regarded as allowable and an early action to that end is requested.

Respectfully submitted,

Wallace R. Kline

LLB:B

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Div. 25 Room 315 2 Paper No. 4 1265

Address only "The Commissioner of Patents, Washington, D.C." and not to any official by name.

JCS:GB

All communications regarding this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

WASHINGTON Nov. 22, 1922

Wallace R. Lane,
Marquette Bldg.,
Chicago, Ill.

PATENT OFFICE NOV 22 1922 MAILED.

Please find below a communication from the EXAMINER in charge of the application of

Harvard F. Snyder, filed June 14, 1922, Ser. No. 568,168

Washing Machines

Thomas E. Robertson
Commissioner of Patents.

In response to amendment filed Oct. 19, 1922:

Claims 1, 2, 3, 4, 5, 6, 8, 10, 11, 30 and 31 are rejected in view of either

Davis,	Sept. 25, 1917,	1,240,826,	(259-96) or
Sieben,	Apr. 11, 1922,	1,412,714,	(259-144).

These patents show agitators that will give the contents of the tub the same motion as applicants device does. It will be observed that the side wall of Davis is flared.

Claims 7, 23, 26, 27 and 28 are rejected in view of the fact that it does not constitute invention to provide as a part of the driving means for a particular stirrer a means for connecting and disconnecting the stirrer such as a belt tightener or a means to move a rack toward and away from a pinion.

It is not necessary that applicant coin a new word such as "gyratator" to specify his agitator. The claims should specify applicant's invention without the use of a coined word.

J. H. Siebstoot.
Examiner, Div. 25.

JHS.

[illegible] 24

IN THE UNITED STATES PATENT OFFICE

In re application of)
HOWARD F. SNYDER)
Serial No. 568,158,) WASHING MACHINES
Filed June 14, 1922,)
Div. 25, Room 315.)

PATENT OFFICE
AUG 31 1923
DIVISION XXIV

A M E N D M E N T

July 28, 1923

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

In response to the Office Action of Nov. 22, 1922, in the above entitled application, the applicant amends as follows:

Claim 1, line 4, before "acting" insert having means, and after "tub" (second occurrence) insert above the gyratator.

Claim 2, line 4, before "means" insert upstanding.

Claim 3, line 4, change "means" to flanges.

Claim 4, line 4, after "cause" insert above the gyratator.

Claim 5, line 4, after "operative" insert above the gyratator.

Claim 6, line 5, before "flanges" insert upstanding; line 6, after "cause" insert above the gyratator.

Claim 30, line 4, after "operating" insert above the base portion.

Please add the following claims:

34. A gyratator for washing machines, comprising a raised central portion, flanges, and radially depressed portions, said flanges extending laterally from said central portion and upwardly from said depressed portions.

35. A gyratator for washing machines, comprising a rounded central portion flaring downwardly and radially and then upwardly to form a depressed portion about the central portion.

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and flanges extending upwardly from the depressed portion.

36. A gyratator for washing machines, comprising a rounded central portion flaring downwardly and radially and then upwardly to form a depressed portion about the central portion, and flanges extending radially from said central portion.

37. A gyratator for washing machines, comprising a central conoidal portion, an inclined peripheral portion and an intermediate trough portion.

38. A gyratator for washing machines, a generally horizontal base portion and a raised central portion, and radially extending upstanding members connected to the central portion and above the base portion.

39. A gyratator for washing machines, comprising a plate formed with an annular depression, a raised central portion and upstanding flanges extending radially from the central portion and into the depressed portion.

40. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle comprising a dish-shaped member and a substantially cylindrical stem rising from and merging into the central portion thereof and terminating in an upper rounded end, said stem having spaced ribs extending vertically along its sides upwardly tapered throughout the length of said stem and extending outwardly across the dish-shaped member.

41. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle comprising a dish-shaped member and a substantially cylindrical stem rising from and merging into the central portion thereof and terminating in an upper rounded end, and spaced ribs extending from the top of said stem vertically downward and outwardly and upwardly across said dish-shaped member, and having substantially semi-circular outer edges.

42. A dolly for a washing machine comprising a cup-shaped disk with a frusto-conical portion rising from its center having a substantially cylindrical stem projecting centrally therefrom and terminating in a rounded top, said stem having radial ribs projecting therefrom and extending along the sides thereof, said ribs being tapered throughout their length of said stem and extending in lobe-shaped form across the surface of said disk.

43. The structure set forth in claim 42, the lower portion of said semi-circular edges being substantially continuous with the surface of said dish-shaped member.

44. An agitating member for a washing machine comprising a cup-shaped disk having a frusto-conical portion rising from the center thereof, the vertical elements of which are concave so that the surface of said portion merges into the surface of said disk, and a round upwardly tapering portion projecting above said frusto-conical portion and terminating in a rounded surface, and narrow radial wings projecting from said latter portion and extending along the sides thereof and across the surface of said disk and having rounded outer edges merging into the concave surface of said disk.

45. A dolly for a washing machine comprising an annular trough, a stem rising centrally from said trough and having a plurality of circumferentially spaced radial wings projecting therefrom and extending along its sides and across the surface of said trough, the top surface of said wings above said trough curving downwardly and inwardly.

46. A dolly for a washing machine comprising a dish-shaped member and a rounded stem rising from and merging into the central portion thereof and terminating in an upper rounded end, spaced ribs extending vertically along said stem and merging into the upper rounded end thereof and extending across the dish-shaped member at the lower ends in lobe-shaped form wherein the upper surfaces thereof above said member are concave.

47. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle comprising a circular disk-like member having a stem rising from and merging into its central portion, and ribs extending vertically from the upper end of said stem downwardly therealong and across the surface of said disk-like member.

48. A rotatable dolly for a washing machine adapted to be disposed in a liquid containing receptacle comprising a dish-shaped member having a central upstanding tapered stem with a rounded upper end, ribs extending across said dish and upwardly along the side of said stem and having rounded upper edges merging into the rounded surface of said stem.

42 48. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle comprising a dish-shaped member and a stem rising from and merging into the central portion thereof and terminating in an upper rounded end, spaced ribs extending outwardly from said stem and across the dish-shaped member.

43 50. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle comprising a dish-shaped member and a stem rising from and merging into the central portion thereof and terminating in an upper rounded end, and spaced ribs extending from said stem and outwardly and upwardly across said dish-shaped member.

44 51. A dolly for a washing machine comprising a cup-shaped disk with a frusto-conical portion rising from its center having a stem projecting centrally therefrom and terminating in a rounded top, said stem having radial ribs projecting therefrom and extending approximately in lobe-shaped form across the surface of said disk.

52. The structure set forth in claim 51, the [illegible]

portion of said semi-circular edges.

45 56. An agitating member for a washing machine comprising a cup-shaped disk having a frusto-conical portion rising from the center thereof, the vertical elements of which are concave so that the surface of said portion merges into the surface of said disk, and a round upwardly tapering portion projecting above said frusto-conical portion and terminating in a rounded surface, and radial wings projecting from said portion and extending across the surface of said disk.

46 56. A dolly for a washing machine comprising an annular trough, a stem rising centrally from said trough and having a plurality of circumferentially spaced radial wings projecting therefrom and extending across the surface of said trough.

47 56. A dolly for a washing machine comprising a dish-shaped member and a rounded stem rising from and merging into the central portion thereof and terminating in an upper rounded end, spaced ribs extending across the dish-shaped member at the lower ends in lobe-shaped form whereby the upper surfaces thereof above said member are concave.

48 56. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle comprising a circular disk-like member having a stem rising from and merging into its central portion, and ribs extending vertically from and across the surface of said disk-like member.

49 56. A rotatable dolly for a washing machine adapted to be disposed in a liquid containing receptacle comprising a dish-shaped member having a central upstanding tapered stem with a rounded upper end, ribs extending across said dish and upwardly therefrom.

50 56. A tub for a washing machine, comprising a bottom portion, side portions, and an upwardly inclined portion between the bottom and side portions.

568 39

59 C 56. A tub for a washing machine, being formed from a sheet of material and being substantially square in cross section and relatively shallow.

52 C 60. In a washing machine, the combination of a tub having a flared bottom, and a gyratator having a depressed portion being located in the tub whereby the gyratator and the flared portion of the tub cooperate to swirl materials in the tub with a substantially gyratory movement.

53 C 61. In a washing machine, the combination of a tub having a tapered portion, a gyratator having a flared portion located in the tub, said tapered and flared portions cooperating to swirl materials in the tub with a substantially gyratory movement in said tub.

REMARKS

Certain of the claims have been amended to more clearly express the invention. Claims 1, 2, 3, 4, 5, 6, 30 and 31, as now presented, are free of the prior art. In both the Davis and Sieben structures are depending dollies with pendant ribs 6 or 33. These are not upstanding flanges, nor are they above the base portion of the dolly so that they could act upon the materials and the cleansing fluid above the dolly. In the devices referred to, the ribs act upon the liquid beneath the plate to cause the liquid to move radially and outwardly against the sides of the tub. The tub shown in the Davis patent does not cooperate with the dolly to cause a gyratory motion of the contents of the tub. In the Sieben patent no tub is shown. In applicant's device the action is above the gyratator and not below it. It is submitted that these claims are not anticipated by the patents last cited.

The rejection of claims 7, 23, 26, 27 and 28 is not understood. The Examiner merely makes a statement of opinion that no invention would be involved. No reasons are given. In applicant's device, the disconnecting and connecting feature and

the belt tightening feature, do involve invention. As for example, the connecting and disconnecting means is effective to bring the gyratator into operation or throw it out of operation without necessitating the stopping of the rest of the driving mechanism. This is advantageous in that a quick throwing into operation or disconnection may be effected, an action which would be far quicker than would be possible by stopping the whole train of driving mechanism. When throwing the gyratator suddenly into operation it acts against the liquid in the tub so as to immediately raise any of the delicate fabrics that may tend to rest lightly against the flanges of the gyratator. The belt tightener feature is of advantage in giving a proper and even, smooth operation. In a washing machine where the motion of the gyratator is alternating rotary it is difficult to obtain a smooth operation but with a belt tightener means, as applicant uses, this end is effected. All of these features are important and produce certain advantages which the prior art does not disclose. It is, therefore, submitted that invention is involved.

The applicant has used the term "gyratator" and has defined that term in the specification, to express a peculiar motion that is not ordinarily obtained with the usual type of agitator. The established practice permits the applicant, in such cases, to use a coined word. Inasmuch as the specification clearly defines this term there is no objection to it appearing in the application, particularly the claims.

Applicant has added some claims and also files an affidavit under Rule 48 to the fact that the invention expressed by these claims constituted a part of his invention as originally disclosed. While it is believed that there is sufficient foundation in the specification to support these claims without affidavit, the applicant nevertheless files the affidavit.

The Examiner will note that claims 40 to 48 inclusive are taken from the patent to Unruh, No. 1,459,483, granted June 19, 1923, for "Dolly for Washing Machine." It is requested that

an interference be declared between this patent and this application. It is apparent that these claims are directed to the subject-matter of applicant's invention, and under Ex Parte Card & Card, 1904 C. D., 383, whatever slight, immaterial differences in terminology are included in the claims of the patent, cannot be of avail to prevent an interference since the two are directed to the same patentable subject-matter, and an interference in fact exists.

Claims 49 to 57 are based upon the preceding claims 40 to 48 for the purpose of more adequately covering the invention. Claims 58 and 59 are directed to other features of the invention and supported by the original specification as well as the attached affidavit. The prior art does not show any tub having the features disclosed in this application and the advantages thereof. It is believed that these claims cover allowable subjects-matter and an allowance of these claims is requested.

Claims 60 and 61 are to the combination of the tub and the gyratator setting forth the cooperation between the two and producing the particular effect flowing from this invention. The prior art fails to show any such combination and it is submitted that these claims should also be allowed.

In view of the above changes and remarks it is believed that the Examiner will agree with the applicant that these claims cover allowable subjects-matter and their allowance is requested at an early date.

It is also requested that an interference be declared without delay to determine the question of priority between the applicant and the patentee Unruh.

Respectfully submitted,

Wallace R. Lane

LLB:LW

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IN THE UNITED STATES PATENT OFFICE

AFFIDAVIT UNDER RULE 46

STATE OF IOWA)
COUNTY OF JASPER) ss.

Howard F. Snyder, whose application for Letters Patent for an improvement in Washing Machines, Serial No. 568,158, was filed in the United States Patent Office on or about the 14th day of June, 1922, being duly sworn, deposes and says that the subject-matter of the foregoing amendment was part of his invention, was invented before he filed his original application, above identified, that such invention was not known or used before his invention, was not patented or described in any printed publication in any country more than two years before this application, was not patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before this application, was not in public use or on sale in this country for more than two years before the date of this application and has not been abandoned.

Howard F. Snyder

Subscribed and sworn to before me this 21st day of August, 1923.

Notary Public.

My Commission Expires July 4th, 1924

FDS:GB

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

WASHINGTON October 2, 1923

Wallace E. Lamb.
Marquette Bldg.,
Chicago, Ill.

PATENT OFFICE OCT 2 1923 MAILED.

Please find below a communication from the EXAMINER in charge of the application of

Howard F. Snyder, filed June 14, 1922, Ser. No. 568,168
Washing machines

Thomas E. Robertson
Commissioner of Patents.

In response to the amendment filed Aug. 30, 1923:

Claims 1, 2, 3, 4, 5, 6, 8, 10, 11, 30 and 31 are rejected in view of

, Kiehle, Mar. 20, 1877, 188,470, (359-101).

Claims 7, 23, 26, 27 and 28 are rejected for reasons of record. If applicant has invented a driving mechanism he should not claim it in alleged combination with the thing driven. It is well known that it is old to provide means for providing a quick throwing into and out of connection between a motor and a thing driven without stopping the motor. As an example see Mills et al. of record.

Claims 34, 35, 36, 37, 38 and 39 are for the same subject matter as claims in applicant's case 596,278 which is in interference. Applicant should transfer these claims to the above named case.

Claims 40 to 57 inclusive are rejected as not being readable on applicant's disclosure. Figure 4 of applicant's drawing shows that the wings 56 are not connected to the

stem. These wings are not lobe-shaped.

Claim 58 is rejected in view of

Pratt et al., Oct. 30, 1888, 392,165, (259-101).

Claim 59 is rejected in view of

Hirschy, Aug. 7, 1923, 1,464,362, (259-101).

Claims 60 and 61 are rejected in view of Hirschy of record.

J. H. Hartwell

Examiner, Div. 25.

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IN THE UNITED STATES PATENT OFFICE

In re application of
HOWARD F. SNYDER,
Serial No. 568,158,
Filed June 14, 1922,
Dry. 25, Room 315.

WASHING MACHINES

AMENDMENT

July 19,1924.

Hon. Commissioner of Patents,
Washington, D. C.
Sir:

In response to the Office Action of Oct. 2, 1923, in the above entitled application, the applicant amends as follows:

Page 3 of the specification, line 10, after "upstanding" insert or depending; same line, after "dollies" insert of the usual construction; line 11, after "bottom" insert or top, respectively.; line 13, after "operation" insert and the rotational or rubbing contact of the ordinary dolly; line 15, cancel the first word and substitute In my invention; same line, cancel "in my invention" and substitute irrespective of the upper or lower end position of the gyratator therein; line 18, after "condition" insert in the liquid; line 23, after "tub." insert Even in the form of the invention illustrated, wherein the liquid impelling blades are disposed at the bottom of the tub, the action of the agitator on the liquid is to constantly press the clothes upwardly in a swirling formation so that they are maintained in substantial suspension in the liquid above the blades.

Page 3, before the first line thereof insert the following: One of the principal objects of this invention resides in providing this improved method of and apparatus for cleansing fabrics without bringing them into substantial rubbing contact with the walls of the tub or the liquid agitating mechanism. [illegible] 5, cancel "outward"; line 6, change "upwardly" to outward[illegible]; page 3, line 9 from the bottom, change the semi-colon to a [illegible]. Cancel

-1-

the word "to", substituting therefor Still further objects of this invention reside in providing a novel construction of agitator blade; and in further providing:

Page 4, line 2, cancel "accomplishes" and substitute therefor provides; line 3, cancel "result" and substitute method of cleaning fabrics.

Page 6, line 4, change "On" to In; line 7, change "rotatively" to pivotally.

Page 7, line 3 from the bottom, after the word "omitted" insert the following: For the purposes of exemplifying my invention, the gyratator or impeller is disclosed and described as mounted on the tub for support. Herein it is shown as projecting upwardly through the bottom of the tub, but it must be evident that all desirable arrangements are within the contemplation of this invention, such, for instance, as the mounting of the ~~dolly or agitator~~ impeller so as to depend into the liquid from the upper portion of the tub ~~with a corresponding rearrangement of surrounding inclined tub wall~~ thereby bringing about the consequent reversal in the flow of the fluid through the tub. Thus, as modified, the flow will be radially outwardly and thence downwardly, and then inwardly and upwardly toward the center of the gyratator.

Page 7, line 3 from the bottom, change the word "The" to In the present disclosure the.

Page 8, cancel the subject-matter beginning with the words "The gyratator" in line 4 and ending with the words "the drawing" in line 12, and substitute therefor the following:

The gyratator is ~~of sheet~~ metal, ~~preferably aluminum~~, or other suitable material, and is of generally circular form when viewed in plan. It comprises an annular, trough-like or dish-shaped portion 54, the central or inner portion of which merges in a continuous concave curve into a central upstanding stem portion 53 which tapers upwardly and terminates in an upper rounded end. The outer peripheral edge of the trough-like portion 54 extends outwardly and upwardly in a concave curve 55 which is continuous with the dished curve of the portion 54.

The gyratator is provided with liquid impelling means, one form and arrangment of which is illustrated in the drawings.

Extending in spaced position radially from the central stem or dome 53 are a plurality of flat, vertically projecting blades, wings or flanges 56 of the shape shown in Fig. 4 of the drawing. The projecting surfaces of these blades taper or incline inwardly in a general direction from their outer edges to the trough-like portion of the gyratator. They extend from the outer edge of the upwardly inclined portion 55, across the dished portion 54, across the central or trough-like portion thereof, and thence upwardly vertically along the sides of the central upstanding stem 53 to a point approximately half way up the sides thereof. At this point the blades merge into the upper rounded end of the stem. The remaining or upper part of the stem is free of blades and forms a smooth, continuously flowing curve at the apex 57.

These blades 56 are of substantial height at their outer portions, so as to project well into the cleaning fluid. The blades incline or curve downwardly and inwardly toward the central axis of the agitator, that is, to the sides of the stem where they merge into the stem. As shown in Fig. 4, the blades extend across the dish-shaped member at the lower ends in [illegible]-shaped form and the upper surfaces of the wings or blades extend considerably above the dish-shaped member to provide sufficient blade surface to impart a considerable force or throw to the water in the direction outwardly and somewhat parallel to the axis of rotation of the gyratator, as hereinbefore described. It is to be noted that the outer inclined portion 55 of the dish-shaped member assists in this movement and that this directional flow is augmented by the inclined walls 48 of the surrounding trough or tub. The force imparted to the water is sufficient to cause the water to flow upwardly to the very top of the tub, as shown in dotted lines, Fig. 1, the downward flow at the upper central portion of the tub [illegible]

Page 8 of the specification. Line 14, after the word "central" insert stem; same line, cancel the words "of the ccmoid" and substitute therefor the word thereof; same page, last line, insert the following: While this embodiment illustrates the invention, it is to be understood that the gyratator may be located at the top of the tub and in depending position from the top or cover thereof.

Page 9 of the specification, line 1, at the end of the line insert the word key; line 7, change the numeral "69" to 65; line 20, change the word "belt" to bell; page 11, line 4, from the bottom, after the word "nozzle" insert the numeral 108;

Page 12, line 4, change "than" to then; line 5, correct the spelling of the word "periphery"; line 7, change "than" to then; line 13, after the period insert the following - As a result of this action imparted to the cleansing liquid by the gyratator, the water in turn imparts a similar action to the fabrics. Goods are thus whipped, whirled and dashed around in the sieving, whirling, tubbulent action set up by the gyratator. Thus the fabrics are given a quick, snappy, sieving, whirling, reversing double action, produced by the gyratator, doubling the clothes first one way and then the other until every thread in the fabric is acted upon an untold number of times, somewhat like the cracking of a whip-lash in all directions.

Kindly cancel claims 1 and 2 and substitute the following:

1. In a washing machine having a tub for containing a washing fluid and goods or fabrics to be washed, a gyratator in the tub, means for reversibly rotating said gyratator, said gyratator having means extending therefrom and acting upon the fluid to cause a substantially gyratory movement of the fluid and goods or fabrics in the tub.

2. In a washing machine having a tub for containing

a washing fluid and fabrics to be washed, a gyratator in the tub, means for rotating said gyratator, said gyratator having blades extending from a face thereof and arranged to effect a substantially gyratory movement of the fluid and fabrics in the tub.

Amend claim 3 as follows:

Line 1, after "machine" insert a comma and cancel the words "comprising a driving power"; line 2, cancel "means"; line 3, after the word "tub" insert the following - power means to actuate the same; line 4, cancel "upstanding flanges" and substitute blades of substantial depth in a direction axially of the gyratator and.

Amend claim 4 as follows:

Line 1, cancel "driving power"; line 3, cancel "and", second occurrence; same line, after "gyratator" insert the following - and power means for actuating the same.; line 4, cancel "flanges" and substitute substantially deep blades; same line, after the word "operative" insert the following - upon the cleaning substance; line 4, cancel the words "above the gyratator and outwardly"; line 5, cancel the words "and upward swirl of"; line 5, after the word "substance" insert the following - to swirl outwardly and axially away from said gyratator.

Amend claim 5 as follows:

Line 3, after the word "gyratator" insert actuated by said power means and; and, after the word "having", same line, insert the word broad; line 5, change the word "upward" to vertical.

Amend claim 7 as follows:

Line 3, change the word "gyratator" to agitator; line 5, change the word "gyratator", both occurrences, to agitator; same line, after the word "comprising" insert outwardly and

radially projecting; line 7, after the word "substance" change the comma to a period and cancel the remainder of the claim.

Amend claim 8 as follows:

Line 3, cancel "an upwardly" and substitute a portion of its walls inclining substantially outwardly; line 4, cancel the words "inclined portion"; line 5, after the word "cleansing" insert substance; cancel the last line of claim 8 and substitute - in a direction substantially parallel to said inclined portion of said tub walls.

Amend claim 10 as follows:

Line 3, cancel the words "an upwardly" and substitute relatively smooth walls inclined outwardly; line 4, cancel the words "inclined smooth portion"; at the end of line 4 insert actuated by said power, means and.

Amend claim 11 as follows:

Line 4, change the word "upwardly" to outwardly; same line, cancel the word "portion" and substitute - wall and an adjoining vertical wall; line 5, cancel "for forcing said"; cancel line 6; line 7, cancel the word "portion"; cancel line 8 and also line 9 and substitute - a swirl of said materials and cleaning substance toward said inclined wall, then along the vertical wall of said tub.

Cancel claim 23 and substitute the following:

23. In a washing machine, the combination of a tub having inner walls substantially free from inner projections, an agitator on said tub and projectible into the fluid therein, means to actuate said agitator, blades radially arranged on said agitator and constructed and arranged to project in a direction parallel with the axis of angular movement of said blades to thereby project fluid from said blades toward said side walls and in a direction substantially parallel thereto.

Amend claim 26 as follows:

Cancel lines 5 and 6 thereof and substitute - belt

and a belt guard movably mounted on said tub in position to shield said belt from the operator, said guard having means adapted to be pressed against the belt by the weight of said guard to tighten said belt.

C 17 Pen D

Amend claim 27 as follows:

Cancel lines 5 and 6 thereof and substitute - and a guard pivotally supported on said tub in position to protect the user from injury from the belt, and provided with a belt tightener pressing normally against said belt.

Pen D

Amend claim 28 as follows:

Line 5, cancel the word "movable"; and after the word "guard" insert the following - mounted movably on said tub in position to protect the user from injury from said belt, said guard.

C 19 Pen D

Amend claim 30 as follows:

Line 2, after the word "gyratator" insert actuated thereby and; line 3, after the word "on" insert the following - and projecting above; after the word "portion," cancel the words said base portion and; line 4, cancel the words "means operating above the base portion".

Amend claim 31 as follows:

Line 2, after the word "gyratator" insert the following - actuated thereby and.

Reconsideration of the Examiner's action in regard to claims 34 to 39 inclusive is asked. These claims are not properly introducible into applicant's copending application 596,878, for the reason that this latter application is confined to a construction wherein the base of the tub is provided with a sunken portion or receptacle into which the gyratator is adapted to fit so that the dished portion of the gyratator is substantially in the same horizontal plane or

registers with the upper portion of the sunken wall of the tub. On the other hand, the present claims are concerned with the peculiar conformation of the gyratator blades. The Examiner kindly bear in mind that the present application is in a way the parent application because it was filed at an earlier date than the co-pending serial number 596,278.

Kindly cancel claims 40, 41, 42, 43, 44, 47, and 48.

These claims are cancelled without prejudice inasmuch as applicant will desire to contest later the Examiner's stand that these claims are not properly introducible into this application. Inasmuch as claims 45 and 46 are clearly readable on the structure of the Unruth patent, Samuel Unruth, No. 459,483, issued June 19, 1923, it is clear that the Examiner now cannot refuse a declaration of interference with this patent on claims 45 and 46, the same corresponding to claims 6 and 7 of patent 459,483. Accordingly, an interference is asked on these two claims. The Examiner will note that the specification of the present application has been slightly reworded to bring out the exact similarity of details of construction with that of the Unruth patent. As a matter of fact, the constructions are substantially identical, and the claims 6 and 7 granted to Unruth are properly construable as reading upon the above application. And, therefore, applicant desires to have these claims awarded to him in an interference contest.

Cancel claim 52 and renumber the other claims accordingly.

Claim 51, line 5, after the word "in" insert the word approximately.

With the exception of claim 52, which has been can-

568 53

called, claims 49 to 57 have been retained in this application especially in view of the amendations thereof to bring out more clearly the exact similarity in construction between the present application and the construction shown in the patent to Unruth. In view of this presentation of the case, reconsideration of the rejection of claims 49 to 57 inclusive, now renumbered, is asked.

Kindly amend former claim 58 as follows:

Line 3, before the period insert and means cooperating with the inclined portion for causing the contents of the tub to travel upwardly thereon.

C 20

Amend claim 59 as follows:

Line 2, after the word "material" insert a comma; same line, cancel the word "and"; line 3, after the word "shallow" insert the following - and an agitator rotatably mounted in the bottom of said tub, said agitator constructed and arranged to project the liquid radially, outwardly and in a direction substantially axially of said agitator.

C 21

Amend claim 60 as follows:

Line 3, cancel the word "being."

Amend claim 61 as follows:

Line 2, change the word "portion" to wall; cancel lines 3, 4 and 5 and substitute the following - extending substantially parallel with the axis of rotation of the gyratator and with the flared wall of the tub to project the liquid and material substantially axially of the gyratator.

C 22

Please add the following claims:

54. The process of washing fabrics and the like in a tub containing cleaning fluid in which the fabrics are placed, which consists in causing the liquid quickly to twist and reverse the fabrics and whip them in various directions in the fluid, so as to repeatedly stress the fabric threads while causing the fluid to sieve through the meshes of the

C 23

fabrics without rubbing the fabrics against hard objects.

55. The process of washing fabrics and the like, which consists in setting up violently flowing, tortuous currents in a body of cleaning liquid, and in maintaining the fabrics substantially suspended in such liquid so as to prevent contact with hard surfaces, whereby said fabrics are acted upon by said currents and caused to twist and turn quickly in various directions while the liquid sieves through the meshes of the fabrics, whereby to effect a thorough cleaning of said fabrics without subjecting the same to rubbing contact against hard objects.

56. The process of washing fabrics and the like in a tub containing cleaning liquid in which the fabrics are placed, which consists in agitating the liquid in violently flowing, quickly reversing, tortuous paths so as to cause the fabrics suspended therein quickly to twist, reverse, and be doubled first in one direction and then in another, whereby to clean the fabrics without rubbing contact against hard objects.

57. In a washing machine, the combination of a tub adapted to contain cleansing liquid, means carried by said tub for agitating said liquid, said means and tub being constructed and arranged to cause tortuous currents to flow through said liquid in predetermined paths disposed to maintain the fabrics in said liquid substantially out of contact with the tub and agitating means, and being constructed and arranged to cause said fabrics to be twisted, whirled and doubled first in one direction and then in the other, whereby to thoroughly clean said fabrics without injurious rubbing contact against hard surfaces.

58. In a washing machine, the combination of a tub having smooth inner walls and adapted to contain cleaning liquid, a dolly mounted on the tub so as to project a fixed, predetermined distance, into the cleansing liquid, means for operating said dolly, liquid agitating blades on said dolly constructed and arranged to set up turbulent currents in said body of liquid so as to maintain

568 55

the fabrics in said liquid out of contact with the outer peripheral bladed portions of said dolly and adapted to gyrate said fabrics through said liquid whereby to clean the same.

59. An agitating element for washing machines, comprising an agitator having a substantially flat outer surface and a plurality of liquid-impelling projections thereon radiating in spaced relation from the center of the agitator, said projections tapering inwardly in extent of projection, from their outer portions.

60. An agitating element for washing machines, comprising an agitator having a substantially flat outer surface and a plurality of liquid-impelling projections thereon radiating in spaced relation from the center of the agitator, said projections inclining inwardly in extent of projection, from their outer portions and the central portion of said agitator within said projections being free of water impelling projections.

61. An agitating element for washing machines, comprising a plate, and blades radiating in spaced relation from the face of said plate, said blades projecting transversely from the face of the plate and tapering in extent of projection from the outer periphery of the plate toward the axis of rotation of the plate.

62. An agitating element for a washing machine, comprising a disc and blades radiating in spaced relation from the face of said disc, said blades projecting transversely from the face of the disc and tapering in extent of projection, from the outer periphery of the disc toward the center thereof, said central portion of the disc being devoid of blades.

63. In a washing machine, the combination of a tub for containing cleaning fluid and fabrics to be washed, an agitator carried by said tub and mounted thereon so as to project into the fluid therein a predetermined distance, power means for reversely rotating said agitator, and fluid-impelling blades radially mounted on said agitator and of substantial depth so as to project well

568 56

1931

into the fluid, thereby to cause said fluid to flow in turbulent paths away from said agitator at the peripheral portions thereof in a direction substantially parallel to the direction of the projection of said blades into said fluid.

64. In a washing machine, the combination of a tub having inner walls substantially free from fabric-rubbing projections, and adapted to contain washing fluid and fabrics to be washed, an agitator adapted to project into the fluid in said tub to agitate said gluid, power means to actuate said agitator, said agitator having a plurality of blades thereon radiating from a common center and increasing in depth of projection into the fluid as they increase in radial distance from said common center whereby to cause a tortuous flow of currents of fluid from said agitator outwardly and away from said blades, then inwardly and toward the central axis of rotation of the blades.

65. In a washing machine, the combination of the tub having inner walls substantially free from fabric-rubbing projections, and adapted to contain washing fluid and fabrics to be washed, an agitator adapted to project into the fluid in said tub to agitate the fluid, power means to actuate said agitator, said agitator having a plurality of blades thereon, radiating from a common center and increasing in depth of projection into the fluid as they increase in radial distance from said common center, and said agitator being devoid of blades at such common center, whereby to cause a tortuous flow of currents of fluid from said agitator outwardly and away from said blades, then inwardly and toward the common center of said blades.

66. In a washing machine, the combination of a tub having inner walls substantially free from inner projections, an agitator projectible into the fluid thereof, means to actuate said agitator, liquid impelling means radially disposed on said agitator and extending parallel to the side walls of said tub, said means being adapted on rotation to direct the fluid outwardly in a path sub-

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stantially parallel to the side walls.

67. In a washing machine, the combination of a tub having inner walls, substantially free from inner projections, an agitator projectible into the fluid thereof, means to actuate said agitator, liquid impelling means radially disposed on said agitator and extending parallel to the side walls of said tub, said liquid impelling means being constructed and arranged on rotation to direct the fluid in a curvilinear path outwardly and nearly parallel to the said walls of the tub.

68. A washing machine, comprising a tub for containing a washing fluid and fabrics to be washed, an agitator carried by said tub and adapted to rotate in the fluid therein, means to reversely rotate said agitator, and fluid-impelling means carried radially on said agitator and of substantial depth in a direction axially of said agitator, whereby to project the fluid outwardly and substantially axially of said agitator a distance substantially equal to the depth of the tub taken on a line parallel to the axis of the agitator.

69. A washing machine, comprising a tub for containing washing fluid and fabrics to be washed, an agitator carried by said tub and projecting through an end thereof so as to rotate in the fluid in said tub, means to reversely rotate said agitator, and fluid-impelling blades carried radially on said agitator and of substantial depth in a direction axially of said agitator whereby the fluid in said tub is projected both outwardly and in a direction toward and substantially to the opposite end of said tub and then inwardly and toward the central point of radiation of said blades.

70. A washing machine comprising a tub having substantially smooth inner walls, an agitator disposed at the bottom of said tub and having liquid impelling means facing toward the top of the tub, said liquid impelling means being constructed and arranged to constantly press the fabrics in the

upwardly away from said agitator despite the weight of said fabrics.

71. An agitating element for a washing machine comprising an agitator having a substantially flat face, and centrally arranged dome having a substantially smooth, substantially rounded top, and a plurality of liquid impelling members radiating from said dome.

72. A washing machine comprising a tub, an agitator disposed in the bottom thereof, means for actuating said agitator, said agitator having a centrally disposed dome provided with a relatively smooth, substantially round top and a plurality of liquid impelling members radiating from said rounded top.

73. In a washing machine, the combination of a tub, an actuating shaft upstanding through the bottom of said tub, a block on said shaft above the tub bottom and an agitator having a centrally disposed upstanding dome and liquid impelling means radiating therefrom, said dome being provided at its underside with a socket adapted to fit over said block.

74. In a washing machine, the combination of a tub, an actuating shaft upstanding through the bottom of said tub, a block secured to said shaft above the tub bottom and an agitator having a centrally disposed upstanding dome and liquid impelling means radiating therefrom, said dome being provided with a socket to receive said block for forming a driving connection between said shaft and agitator.

ARGUMENT

Claims 1 and 2 have been cancelled and for them are substituted new claims 1 and 2. These new claims are free of the reference to Kiehle No. 18,870, for the reason that such patent fails to show a gyratator power driven and having blades extending therefrom to act on the fluid and cause a substantial gyratory movement of the gluid in the tub. In the Kiehle patent the blades are not of substantial depth. Furthermore, the agitator C is not power driven as the Examiner apparently thinks.

Claim 3 has been slightly amended to bring out one of the features of the novel gyratator blades, to wit: the fact that the blades project a substantial depth in a direction axially of the gyratator. This is not true of Kiehle, which neither shows a power drive gyratator nor one having blades as described in this claim.

Claim 4 is free of this reference for the same reason.

Reconsideration of the rejection of claim 5 is asked for the same reasons as were urged in response to the rejection of claim 4. This claim 5 has been slightly amended to bring out the fact that the agitator is power driven and also that it has deep liquid impelling blades.

Reconsideration of rejection of claim 6 is asked as amended. The patent to Kiehle does not show a gyratator or an agitator element power driven. Nor does it show such agitator provided with upstanding liquid impelling flanges.

Claim 7 has been amended to avoid the objection and also rejection cited by the Examiner thereagainst. In other words, the element constituting the disconnecting mechanism has been removed from the claim. In addition, the claim has been altered to recite the fact that the liquid impelling flanges project both outwardly and radially to thereby cause

the gyration of the liquid in the tub.

Claim 8 is not met by the patent to Kiehle. This patent fails to show a power actuated agitator and also fails to show the inclined walls of the tub. The vertical walls of this patent in no sense can be termed inclined outwardly. They are merely vertical. In contra distinction to this construction, applicant presents the outwardly inclined wall portion 48, which are in a true sense outwardly inclined.

Claims 10 and 11 have been slightly amended to bring out more clearly the inclined feature of the said walls plus the fact that the agitator is power driven. This truly and completely distinguishes from the patent to Kiehle.

Claim 25 has been cancelled.

Claim 26, 27 and 28 have been amended to eliminate the objectionable features thereof stated by the Examiner; to-wit, the generic combination of a washing machine element and a disconnectable drive therefor. The claim amended now brings out the intimate relation of the tub, the agitating element, the belt drive for the agitating element that is on the tub, the guard for the belt drive which is located to protect the user of the tub from injury, and in addition, the fact that this guard is constructed and arranged to provide a certain pressing element for the belt. This is certainly a valid combination and is entitled to protection. The pertinency of the Mills patent cited by the Examiner is not apparent, and therefore, if the Examiner persists in his citation of this reference against these claims, it is requested that he set forth with greater particularity the applicability of this patent.

Claims 30 and 31 have been amended to set forth that the gyratator is power driven. This is not so with the Kiehle

patent. Furthermore, the claims bring out the fact that the gyratator has upstanding liquid impelling blades thereon adapted to produce a gyratory movement of the contents of the tub. This is not true of the patent cited against the claim.

The Examiner is requested to review and reconsider his attitude in regard to claims 34 to 38 inclusive. The reasons for retaining these claims in this application have been heretofore set forth and will not be repeated at this point.

As has also been explained before, all but two of claims 40 to 48 have been cancelled without prejudice. Claims 45 and 46 have been retained and an interference baked on these claims.

In regard to claims 49 to 57, it might be stated that claim 52 thereof has been cancelled, the remaining claims however, are retained in the application. And in view of the amendation of the specification, it is now asked that the Examiner reconsider his rejection of these claims as unwarranted. If the Examiner will read the amended specifications in the light of the drawings, he will see the applicability of the structure therein disclosed, and recited, and the manner wherein it reads upon these duly presented claims 49 to 57 inclusive.

Claim 58 has been amended to distinguish from the patent to Pratt, No. 393,185. This patent shows no means for causing the contents of the tub to flow upwardly along the inclined walls thereof.

Claims 59, 60 and 61 have been amended to present more clearly the invention set forth in the application.

In connection with these claims, an affidavit under Rule 75 is submitted herewith overcoming the patent to Hirschy No. 1,464,382.

The Examiner will readily appreciate that the patent to Hirschey did not and does not anticipate the subject-matter of claims 59 to 61. However, in order to remove this reference, the affidavit overcoming it has been presented.

Substitute claim 33 brings out the fact that the liquid-impelling blade causes the water to travel in a curvilinear path somewhat parallel to the sides of the tub walls. This construction has not been touched in any of the art of record.

New claims 54 to 56 include the novel process presented in this application, wherein, for the first time in the washing machine art there has been disclosed a process for washing favrics, including delicate fabrics, by means which causes the water to travel in certain predetermined paths described in the claim; which cause the water in turn to act upon the fabrics suspended in the water and cause the fabrics to move about in certain predetermined paths described in the specification, thereby to bring about the thorough cleansing of the fabrics. The Examiner will note that these claims clearly set forth the fact that the washing operation is brought about in a manner so that the fabrics are not contacted with a rubbing force against the inner walls of the tub or the agitating mechanism itself. In this manner the delicate fabrics or other fabrics are saved from the wear which is usually incident to washing machine operation.

In reference to the prior art concerning these process claims, it is pointed out by applicant that Schneider No. 1,253,536, is totally irrelevant for the reason that the Schneider disclosure depends for its efficacy upon the rubbing contact of the propellor blades against the clothing. In other words, the propellor blades of the patent cause the clothing to travel in a disclosed path denoted by the arrows in Figure 1 of the patent. The other patents on record disclose construc-

tion wherein the agitating element strikes against the fabrics and impels them against rubbing projections or abutments within the tub. Such, for instance, is the construction shown in the patent to King, No. 113,603. With regard to the patent to Davis, No. 1,240,826, it is pointed out that by reason of the slidable connection between the agitator 2 and the shaft 3, the agitator is mounted so that it will slide down and make rubbing contact with the fabrics in the tub. In other words this Davis patent also contemplates the washing action to be brought about by rubbing contact of the agitator 2 with the clothes. It is true that the Davis patent also mentions an incidental washing of the fabrics by means of the inward turn of the washing liquid, but that is merely incidental to the main rubbing action of the agitator 2.

New claim 57 brings out one of the novel features of the washing machine construction wherein the current and particularly the agitator herein referred to as the gyrator, is constructed and arranged to maintain the fabrics suspended in the cleansing liquid and out of contact with the agitator blades. During the suspension of the fabrics, the same are subjected to violent, tortuous liquid current, which whips the fabrics back and forth and cleanses them without contacting them with the hard walls of the tub or agitator blades.

New claim 58 presents a similar construction to that disclosed in 57 except that the dolly or agitator is set forth as having a fixed, predetermined position in the tub. This claim is broad enough to include the dolly projecting either from the bottom of the tub or depending downwardly thereinto.

New claims 59, 60, 61 and 62 are drawn broadly and specifically to the agitator element itself. And particularly with reference to the construction of radial blades thereon, which blades are set forth as projections from the [illegible] of the agitating element in a manner so as to taper from the [illegible]

563 61

edge of the agitator inwardly in a direction toward the center. In certain of the claims the central portion of the agitator is described as being free of blades, whereby the prevent the fabric from being contacted and drawn into contact with the blades at this point. It will be understood that these claims are broad enough to include an agitating element wherein the central portion is provided with a depressed zone free from blades or with a raised, knob-like or stem-like portion, the upper portion of which would be free from blades, as in applicant's construction.

New claim 64 brings out the point that the agitator blades project into the body of the liquid therein, that is in the tub, and increase in depth of projection thereinto as they project outwardly on the radius of the agitating element, whereby to set up tortuous currents in the liquid which flow outwardly and away from the blades, then inwardly and toward the central axis of rotation of the blades. This subject-matter is not present in the patent of Davis, 1,240,826, for the reason that Davis shows merely straight sided bars 4 and 6 projecting from the face of the agitator. This construction will not cause the flow of the liquid as described in this claim, Davis' allegation in his patent to the contrary, notwithstanding. The tapering, projecting feature of the blade is necessary to the projection of the liquid in the tub as described in this claim, and inasmuch as the patent of Davis signally fails to disclose such tapering arrangement of blades, the patent in no wise anticipates the substance of this claim, and hence is not a valid reference therefor.

New claim 65 is somewhat like new claim 64, and is accordingly free of the patented art cited herein, including the patent to Davis for the reasons as hereinbefore set forth in regard to the irrelevancy of the Davis patent as a citation

against claim 64. Claim 65 includes the feature that the central zone of the agitator is free of blades or projections, which construction assures that the fabrics will not contact and be entangled with blades if they were at this zone.

New claim 66 is drawn about along the same line as the prior two claims. It recites, for instance, that the blades which radiate from the agitator extend or project in a direction parallel to the side walls of the tub, and that when they rotate they will pass or project the fluid outwardly in a path substantially parallel to the side walls. The patent to Davis contemplates no such structure. The novelty of this claim resides in the fact that the projection of the blades is somewhat parallel to the side wall and that due to such projection, the liquid is passed or thrown in a path parallel to the side wall. In the Davis patent the liquid is thrown out radially in a direction transverse to the side walls of the tub. And the Davis patent is no anticipation.

New claim 67 differs slightly from 66 in that it recites that the blades are arranged to throw the liquid in a curvilinear path outwardly and tangent to the side walls of the tub. This is a more specific repetition of the invention, that is, it recites with greater particularity the path of travel of the liquid current.

New claim 68 recites that the projection of the blade is of sufficient extent to project the fluid upwardly and substantially axially of said agitator a distance substantially equal to the depth of the tub. It will be noted that in applicant's construction the current noted by the dotted line extends from the bottom of the tub clearly to the top thereof, whereby to cause a complete tortuous circulation of the liquid throughout the extent and depth of the tub. In the patent to Davis there will be no such extended path of travel of the currents of liquid due to the fact, that the shallow, bar-like projections

of the agitator face are not sufficient depth to effectually project the liquid any considerable distance in the tub. This full and complete travel of the liquid current, due to the blade depth of the agitator is a very important, and essential feature of applicant's invention, and too much stress cannot be laid thereon.

New claim 69 is somewhat along the lines of claim 67, except that the path of travel of the current is more exactly described to correspond to the dotted line path of travel indicated in Figure 1 of applicant's drawing. Favorable action upon these claims is respectfully urged.

Respectfully submitted,

Wallace R Lane

LBM:LW

MAIL ROOM JUL 22 1924 U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

PATENT OFFICE JUL 22 1924 DIVISION XXV.

In re application of
HOWARD F. SNYDER,
Serial No. 568,158,
Filed June 14, 1922,
Div. 25, Room 315.

WASHING MACHINES

AFFIDAVIT UNDER RULE 75

STATE OF IOWA } ss
COUNTY OF JASPER }

Howard F. Snyder, being duly sworn, deposes and says that he is the inventor of the subject-matter disclosed, described and claimed in the above entitled application, and that said application was filed on his behalf.

He further states that he invented the subject-matter of this application and that set forth in the attached amendment, the subject-matter of which is identical with the construction disclosed in the three prints accompanying this affidavit and made a part thereof, prior to February 23, 1922, and that prior to that date he actually constructed in the United States a machine embodying the features of construction corresponding exactly to that disclosed on the prints attached hereto. And that said machine as thus constructed, successfully operated.

The deponent further states that the washing machine which he constructed prior to February 23, 1922, embodied a square, relatively shallow tub, into the lower portion of which projected a power driven agitator, having a dished surface corresponding to and conforming to the disclosure and construction set forth in Figure 4 of the attached cuts, which agitator, in addition thereto, had a plurality of blades, of the design disclosed in Figures 1, 4, 5 and 8 of the attached cuts; in addition thereto the lower portion of the washing machine tub was

568 #8

provided with an upwardly inclined wall corresponding exactly to the wall disclosed at the numeral 48 in Figure 1 of the attached prints; and that this agitator when reversely located in the tub acted to project the liquid therein, radially outwardly and in a direction substantially axially of said agitator, and in a manner to throw the liquid and the materials in the tub with a substantially gyratory movement as shown in the dotted line in Figure 1 of the prints attached.

And further deponent sayeth not

Howard A. Snyder

Subscribed and sworn to before me this 8th day of July, 1924.

Imogene M. Heathcock
Notary Public.
My Commission expires July 4th, 1927

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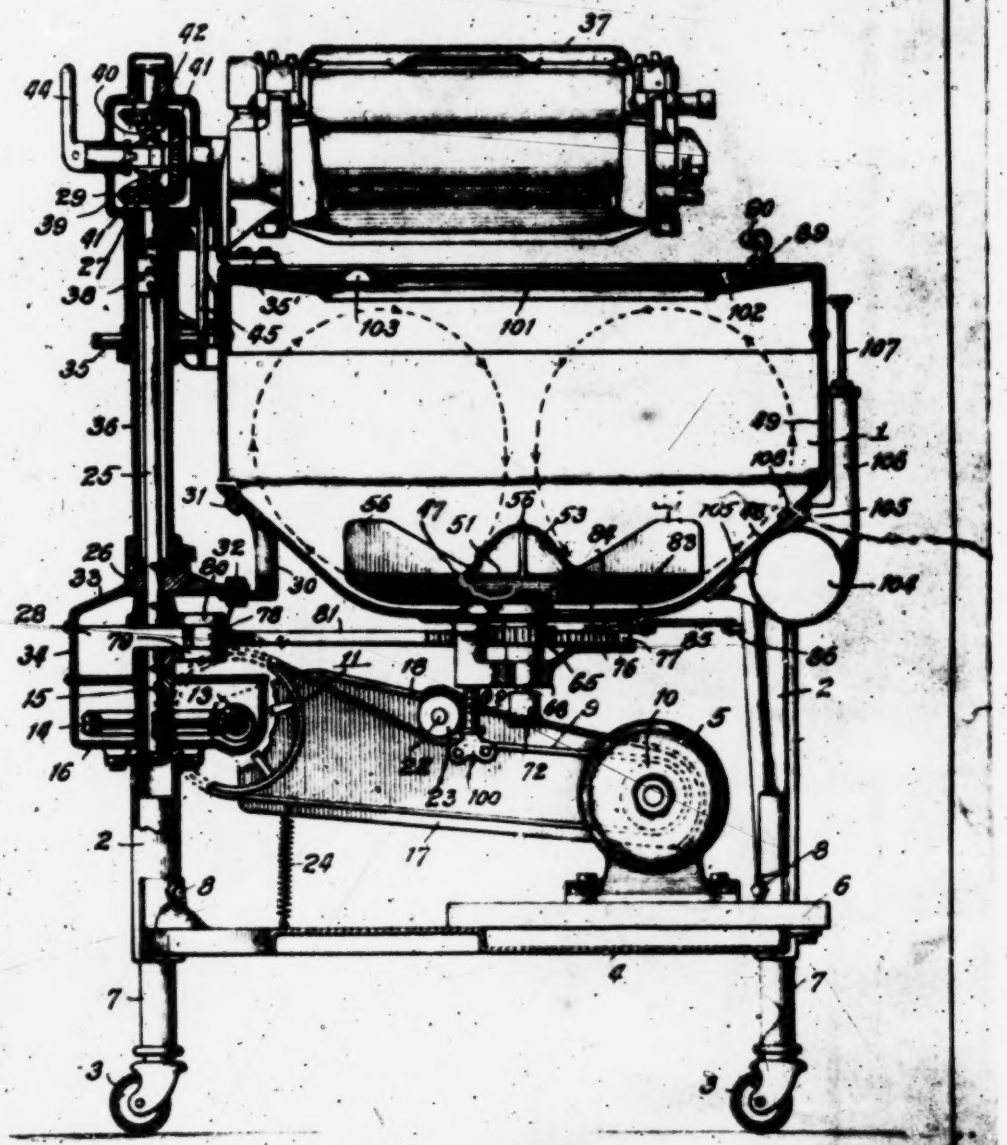
Fig. 1.



Inventor:
Howard F. Snyder
by Wallace R. Lane

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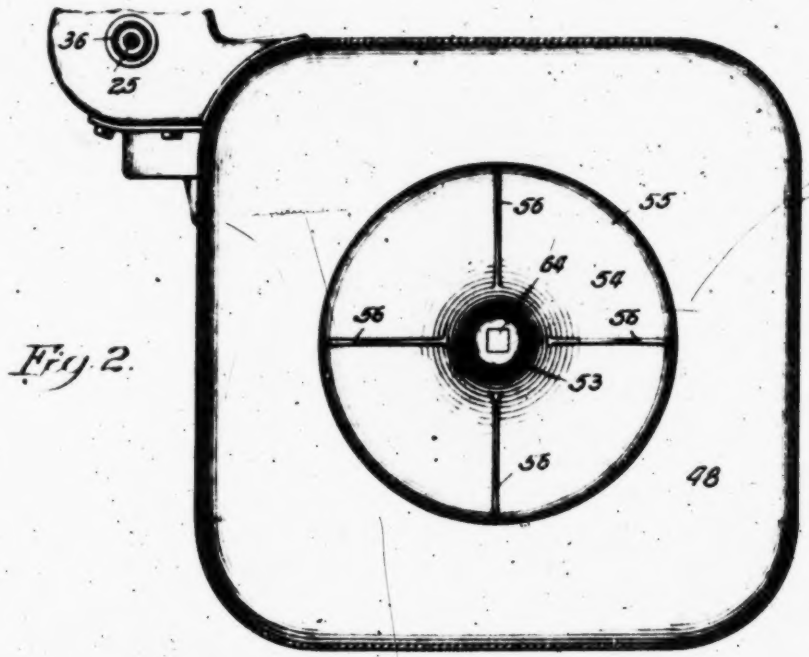

Fig. 2.

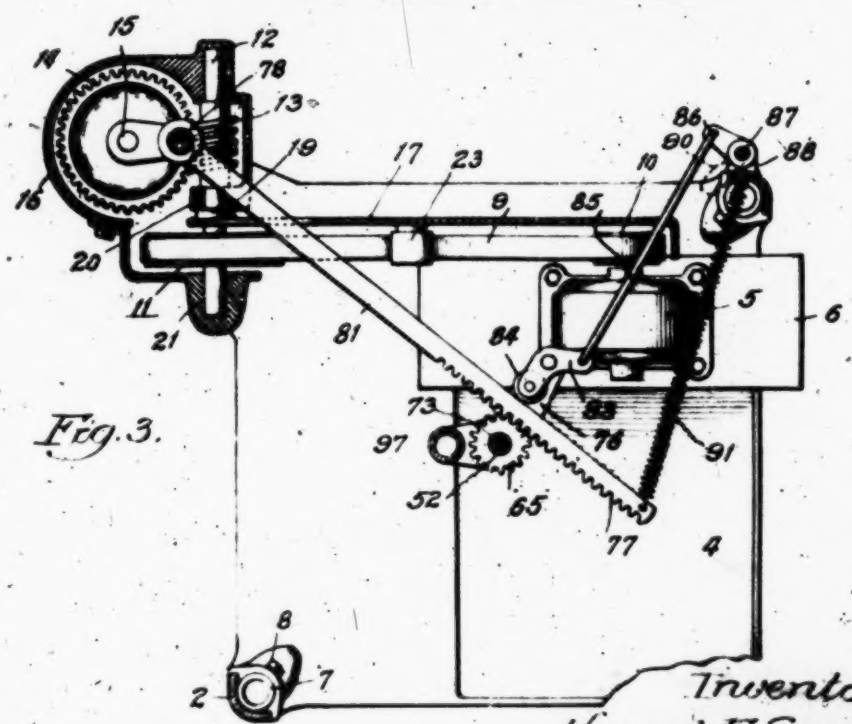

Fig. 3.

Inventor:
Howard F. Snyder.
by Wallace R. Lane
Atty.

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Fig. 4.

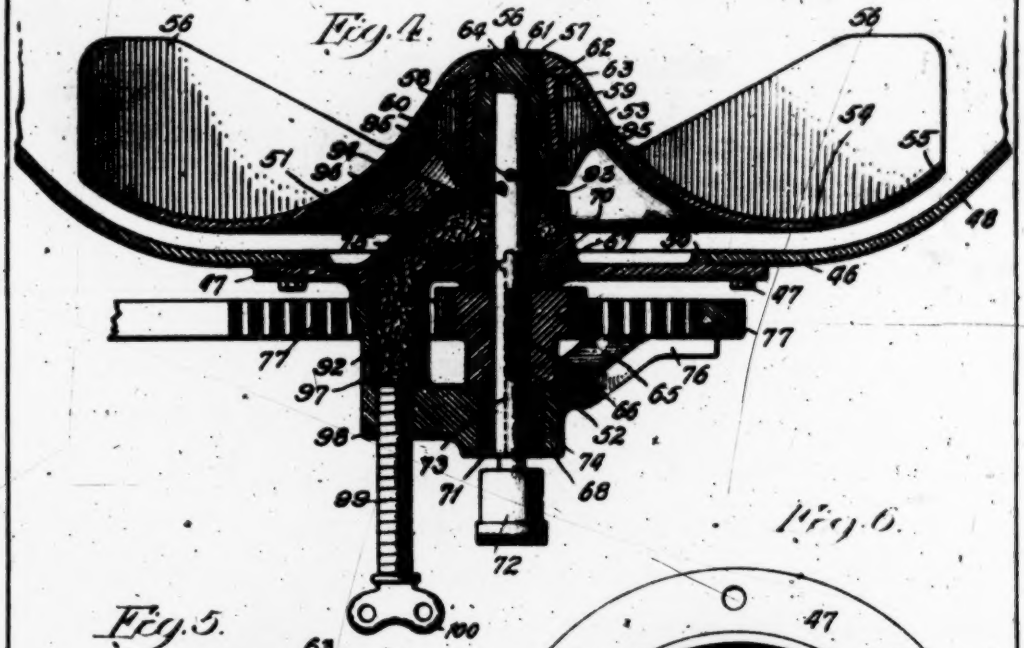


Fig. 5.

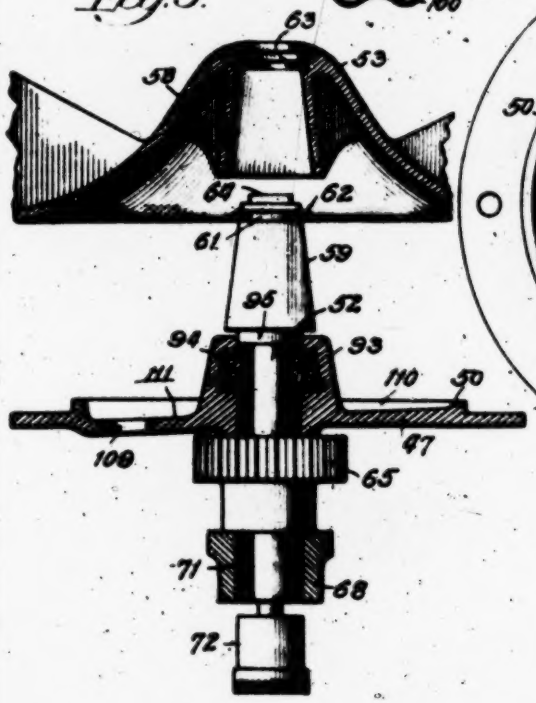
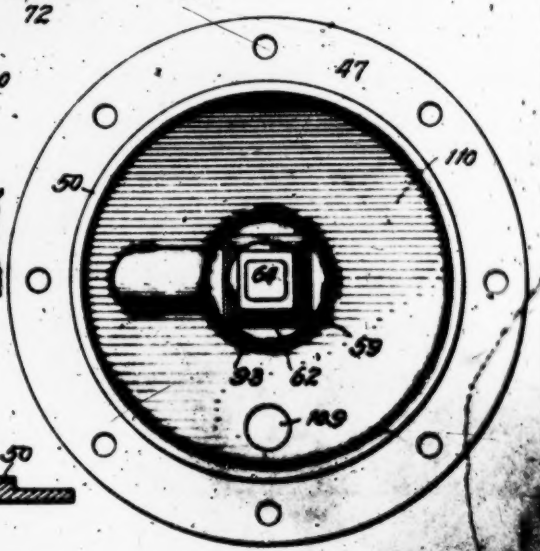


Fig. 6.



Inventor:
Howard F. Stra[illegible]
by Wallace R. [illegible]

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PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

AFFIDAVIT UNDER RULE 48

STATE OF IOWA }
COUNTY OF JASPER } ss

Howard F. Snyder, whose application for Letters Patent for an improvement in Washing Machines, Serial No. 568,158, was filed in the United States Patent Office on or about the 14th day of June, 1923, being duly sworn, deposes and says that the subject-matter of the foregoing amendment was part of his invention, was invented before he filed his original application, above identified, that such invention was not known or used before his invention, was not patented or described in any printed publication in any country more than two years before this application, was not patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before this application, was not in public use or on sale in this country for more than two years before the date of this application and has not been abandoned.

Howard F. Snyder

Subscribed and sworn to before me this 5th day of July, 1924.

Notary Public.
My Commission Expires July 4th, 1927

Div. 23 Room 315 JC3:GB Paper No. 8 1345

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name.

All communications regarding this application should give the serial number date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

WASHINGTON July 28, 1924

Wallace R. Lane,
Marquette Bldg.,
Chicago, Ill.

PATENT OFFICE JUL 28 1924 MAILED

Please find below a communication from the EXAMINER in charge of the application of

Howard F. Snyder, filed June 14, 1922, Ser. No. 568,158

Washing Machines

Thomas E. Robertson
Commissioner of Patents.

In response to Amendment filed July 21, 1924:

The affidavit under Rule 75 is insufficient. It does not state that the invention has not been abandoned, and it does not state facts as evidence to show that applicant made the invention prior to February 23, 1922, but merely states applicant's conclusions. Applicant should show drawings made prior to that date or file a photograph of a device made prior to that date or give evidence of other facts to support his allegation.

Claims 1 to 6, inclusive, 8, 10, 11, 30 and 31 stand rejected for reasons of record and in view of

King et al., Aug. 24, 1869, 94,005, (259-108), which shows a gyratator & which will act as applicant's gyratator. Attention is called to the depth of the blades of this device.

Claims 7, 25, 26, 27 and 28 are rejected in view of the patent to King et al. and in view of reasons of record.

Claims 34 to 39, inclusive, are rejected as being for the same subject matter as claimed in applicant's allowed application Ser. No. 576,378.

Claims 40, to 49, 72, 73 and 74 are rejected as not being readable upon applicant's disclosure as explained in the Office letter of October 8, 1923.

Claims 54, 55 and 56 are rejected as being for a process readable upon King et al. or Liehle of record.

Claims 57 to 71, inclusive, are rejected in view of King et al.

Applicant appears to have sufficient claims allowed to cover the novelty in the case. See Ex parte Duncan 276 O.G. 207. The claims are too numerous.

If it is not necessary to cite new references in the next action, final action will be taken as set forth in Ex parte Miller 139 O.G. 750.

The examiner repeats the objection to the coined term "gyratator" and rejects each claim in which this term is employed as being in this respect indistinct under the statute.

J. H. Jackson

Examiner, Div. 25.

JHJ

U.S. PATENT OFFICE APPLICATION DIV. JUN 10 1925

IN THE UNITED STATES PATENT OFFICE.

RE APPLICATION OF
HOWARD T. SNYDER,
SER.NO. 568,158,
FILED JUNE 14, 1922,
DIV. 25, ROOM 315.

WASHING MACHINES.

A M E N D M E N T.

In response to the Office Action of July 28, 1924, applicant amends as follows:-

Cancel claims 1 to 7 inclusive and substitute the following claims:-

1. The process of cleansing fabrics in a tub comprising so agitating the washing fluid as to create positively driven violently flowing currents which are caused to move away from and back to the plane of the source of agitation, and also around in one direction in a plane approximately parallel with the plane of agitation, and then caused to move away from and back to the plane of the source of agitation, but around in the reverse direction in a plane parallel with the plane of agitation, so as to bodily and forcibly cause the fabrics in the tub to travel in substantially similar paths, whereby thorough cleansing of the fabrics is effected without substantial contact with rubbing surfaces.

2. In a washing machine a tub for containing a cleansing fluid and fabrics or the like to be

cleansed, an impeller rotatably mounted in said tub, said impeller comprising a substantially imperforate base member having a projection of substantial depth on one of its faces located contiguous to the periphery thereof, and means for imparting alternate reverse rotations to said impeller, the speed of actuation of the impeller and the depth of the projection being such as to produce within the tub positively driven violently flowing currents of the cleansing fluid which are caused to move upwardly and downwardly and also around the tub in one direction and then around the tub in the reverse direction on one side of the plane of the source of agitation, so as to bodily and forcibly cause the fabrics to travel in substantially similar paths, whereby thorough cleansing of the fabric is effected without substantial contact with rubbing surfaces.

3. In a washing machine a tub for containing a cleansing fluid and fabrics or the like to be cleansed, an impeller rotatably mounted in said tub, said impeller comprising a substantially imperforate base member provided on one face with an outstanding impelling projection of substantial depth, the depth of said projection being greatest contiguous to the periphery of the base member and decreasing toward the center of said base member, and means for imparting alternate reverse rotations to said impeller, the speed of actuation of the impeller and the depth of the projection being such as to produce within the tub positively driven violently flowing currents of the cleansing

which are caused to move upwardly and downwardly and also around the tub in one direction, and then around the tub in the reverse direction on one side of the plane of the source of agitation, so as to bodily and forcibly cause the fabrics to travel in substantially similar paths whereby thorough cleansing of the fabric is effected without substantial contact with rubbing surfaces.

The above three claims, the first one to the process and the last two to the apparatus are those claims which were submitted to the Primary Examiner at an oral interview. The Examiner at that time indicated that he would allow these claims over any art cited in this application. In order to refresh the Examiner's recollection as to the irrelevancy and inapplicability of the patents cited, applicant desires to point out that the subject matter of the above three claims is not met by the patent to King, 94005 for the reason that King discloses nothing more than a dolly E having blades thereon which taper from a maximum height at the center to a minimum height radially outwardly and also discloses a means for rotating this dolly continuously in one direction. A continuous rotation of the dolly in one direction only, will not produce the gyrafoam effect which forms the essence of applicant's invention.

The subject matter of the above claims is not met by patent to Kiehle, 188,470 for the reason that the positively driven liquid impeller E which depends from the top of the tub consists of nothing more than downwardly projecting rod-like stirrers, a cross-section of one of which is illustrated in Figure 8 of the drawings. The function of this stirrer is described on page 1 of the

specification as follows:-

> "The stirrer E thus receives a semirotary motion, and, by moving the clothes backward and forward in the tub and against the ribs a thereof and ribs c of the bottom C, they are thoroughly washed and cleaned. The revolving bottom (C) prevents the clothes from catching against any part of the machine, and at the same time gives enough resistance to the stirrer and the clothes to thoroughly cleanse them."

It will be seen from this disclosure that the so-called revolving stirrer C is not a liquid impelling device, as was cited in the claims, and will not of itself, or in cooperation with the stirrer E produce a circulation of the cleaning fluid as called for by the claims.

The David patent 1,240,826, discloses a circular disk, provided with shallow cleats 6 on one of its surfaces. The essence of this invention resides in forming the inner adjacent ends of these cleats with beveled surfaces 7 and in arranging certain of the opposed ends closer to the center of axis of rotation of the disk whereby to produce a peculiar flow of the washing liquid at the center of axis of the disk. This is set out on page 1 of the specification at lines 79 to 86 as follows:-

> "Because of this peculiar arrangement of rods 4 and 6, the fluid is caused to flow in lines similar in shape to an elongated loop depressed intermediate its extremities. The constantcy of such flow lines eliminates eddies and other current irregularities preventive of a high degree of efficiency."

As explained to the Examiner, the substantially uniform cross-section of the rods 4 and 6, andprimarily the shallowness, constitute the primal distinguishing feature between the Davis construction which will not produce applicant's gyrafoam effect, and applicant's construction, comprising substantially deep liquid impelling blades of

maximum height near the circumference of the substantially imperforate alternating rotary disk on which they are mounted. By reason of applicant's construction, the cleansing fluid is caused to flow in violently flowing gyratory currents which are so vigorous as to positively and bodily impart a similar movement to the clothes being washed, so that the water is sieved through the meshes of the clothes, as such clothes are twisted and turned by the current, - all without substantially rubbing contact with the liquid impeller itself.

Applicant obtains more than a mere circulation, such as is present in Davis. For instance, applicant produces a circulation accompanied by a vigorous turbulent agitation. In the Davis construction, the very shallowness of the cleats 5, and their lack of sufficient height, particularly at their outer ends, eliminates any possibility of this effective gyrofoam cleaning which is applicant's invention herein claimed.

It is noted that the claims 2 and 3 covering the apparatus recite that the currents flow "on one side of the plane of the axis of agitation". This wording is [illegible] to distinguish from any [illegible] art wherein the cleansing [illegible] liquid impeller across [illegible] spaces between the [illegible] through the other [illegible] for instance as in ap- [illegible] In this [illegible] produced [illegible] the [illegible] axis of the liquid im- [illegible] between the radial

liquid impelling blades or arms 24 and 25. This action has been explained to the Examiner in detail.

A proper affidavit under Rule 75 will be submitted by applicant as soon as practicable to carry his date of invention back of the date of filing of the patent to Hirschy, 1,464,362 of August 7, 1923, which application was filed February 13, 1922.

Cancel claim 8 and substitute:-

8. In a washing machine the combination of a tub for containing a cleansing substance and the materials to be cleansed, said tub having an outwardly and upwardly inclined portion, an impeller cooperating with the said inclined portion of the tub to force said cleansing substance and materials to be cleansed outwardly in a direction substantially parallel with said inclined portion, and power means for oscillating said impeller.

Claim 4 is not met by Kiehle nor King of record for the reason that Kiehle fails to disclose a tub having a portion of its walls inclined substantially outwardly, which substantial outward inclination of the tub wall is one of the important features of applicant's invention.

In Kiehle there is a mere "draftsman's showing" of the side walls of the tub disposed at the bottom at an imperceptible angle to the vertical. This by no means is such a disclosure as would warrant the Examiner in continuing the citation of this reference against this claim. In the patent to King there is no oscillation of the liquid impeller, which feature is of prime importance in the carrying out of the invention.

Cancel claim 9 and rewrite it as follows,- renumbering it as claim [illegible]

5. In a washing machine the combination of a tub adapted to contain wash water and goods to be washed, said tub having a flared portion, a liquid impeller in said tub having a depressed portion, said liquid impeller cooperating with said flared portion to swirl said wash water and goods with a substantially gyratory movement, and power means to alternately rotate said liquid impeller.

Claim 5 is not met by King or Kisling et al for the reason that it recites a liquid impeller having a depressed portion and a flare to the top wall, plus an oscillation of the liquid impeller. These features are not in the two patents cited.

Cancel claims 10 and 11.

Change the numeral of claim 12 to 6 and amend as follows:-

Lines 3, 4 and 5, change "gyrator" to:- liquid impeller.

This claim has been amended to eliminate the Examiner's objection to the term "gyrator". The claim has already been allowed.

Change the numeral of claim 13 to 7 and amend as follows:-

Lines 3, 4 and 7, change "gyrator" to:- liquid impeller; line 4, after "with" insert:- an; line 5, change "flanges" to:- flange; same line, after "depressed" insert:- a; same line, change "portions" to:- portion; same line, change "between" to:- on each side of; same line, change "flanges" to:- flange.

Claim 7 (former claim 13) has been amended to eliminate the objectionable term "gyrator", and also improves the wording of the claim.

Cancel claims 14 and 15.

Change the numeral of allowed claim 16 to 8 and amend as follows:-

lines 3, 4 and 5, change "gyrator" to:- liquid impeller.

Change the numeral of allowed claim 17 to 9. and amend as follows:-

Lines 2 and 5, first occurence, change "gyrator" to:- liquid impeller; line 5, change "above the gyrator" to:- above the liquid impeller.

Cancel claim 18.

Change the numeral of allowed claim 19 to 10, and amend as follows:

Lines 2 and 4, change "gyrator" to :- liquid impeller.

Change the numeral of claim 20 to 11, and amend as follows:-

Lines 3 and 4, change "gyrator" to:- liquid impeller.

Change the numeral of allowed claim 21 to 12 and amend as follows:-

Lines 3, 4 and 6 change "gyrator" to liquid impeller.

Change the numeral of allowed claim 22 to 13 and amend as follows:-

Lines 3, 4 and 6, change "gyrator" to:- liquid impeller.

The above claims have been amended to cure the Examiner's objection to the word "gyrator".

Change the numeral of allowed claim 24 to 14, and amend as follows:-

Lines 4, 5, 7 and 8, change "gyrator" to:- liquid impeller.

Change the numeral of allowed claim 25 to 15, and amend as follows:-

Lines 3, 4 7 and 9, change "gyrator" to:- liquid impeller.

These two claims 14 and 15, have been amended by substituting an acceptable word for the word "gyrator".

Cancel claims 26, 27 and 28 and change the numeral of claim 29 to 16 and amend as follows:-

Line 3, change "gyrator" to:- liquid impeller.

Cancel claims 30 and 31, and change the numeral of claim 32 to 17 and amend as follows:-

Line 2, change "gyrator" to:- liquid impeller.

Change the numeral of claim 33 to 18 and amend as follows:-

Lines 2 and 3, change "gryator" to:- liquid impeller.

Claims 17 and 18 (former allowed claims 32 and 33) have been corrected to cure the Examiner's objection to the term "gyrator."

Cancel claims 34 to 39 both inclusive.

Insert the following claims:-

~~19.~~ A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top porpion well below the top of said receptacle comprising a dish-shaped member and a substantially cylindrical stem rising from and merging into the central portion thereof and terminating in an upper rounded end, said stem having spaced ribs extending vertically along its sides upwardly tapered throughout the length of said stem and extending outwardly across the dish-shaped member.

~~20.~~ A dolly for a washing machine comprising

a cup-shaped disk with a frustoconical portion rising from its center having a substantially cylindrical stem projecting centrally thereabove and terminating in a rounded top, said stem having radial ribs projecting therefrom and extending along the sides thereof, said ribs being tapered throughout their length of said stem and extending in lobe-shaped form across the surface of said disk.

21. An agitating member for a washing machine comprising a ~~cupshaped~~ cup-shaped disk having a ~~frustoconical~~ frusto-conical portion rising from the center thereof, the vertical elements of which are concave so that the surface of said portion merges into the surface of said disk, and ~~around~~ a round upwardly tapering portion projecting above said frustoconical portion and terminating in a rounded surface, and narrow radial wings projecting from said latter portion and extending along the sides thereof and across the surface of said disk and having rounded outer edges merging into the concave surface of said disk.

Change the numeral of claim 40 to 22.

Change the numeral of claim 41 to 23.

Insert the following as claim 24.

~~24.~~ 24. A dolly for washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle, comprising a circular disk-like member having a stem rising from and merging into its central portion, and ribs extending vertically from the upper end of said stem downwardly therealong and across the surface of said disk-like member.

Insert the following as claim 25.

~~25.~~ 25. A rotatable ~~dolly~~ agitator for a washing machine adapted to be disposed in a liquid containing receptacle comprising a dish-shaped member having a central upstanding

tapered stem with a rounded upper end, ribs extending across said dish and upwardly along the side of said stem and having rounded upper edges merging into the rounded surface of said stem. Add I 3 c. 17

The above claims 19 to 25 are claims 1,3,5,6, 7,8 and 9 respectively of the patent 1,459,483. Reconsideration of the Examiner's declination to declare an interference on these claims, is asked. Particular attention is called to claim 6 which is the claim drawn to the Primary Examiner's attention to the oral interview had. At that time, it was pointed out that applicant's invention most certainly disclosed a dolly comprising an annular trough and a stem rising centrally from said trough, and having radial wings which extend along the sides of the stem and across the surface of the trough. Certainly the top surface of these wings curve downwardly and inwardly. It is not understood how the Examiner can possibly read this claim and not consider it as reading squarely on applicant's drawings. See Figure 4. If there by any distinction between the Unruh disclosure and that of applicant, it has certainly not been brought out in this claim. Applicant has just as much of a stem as has Unruh. Applicant's stem may not be as tall as that of Unruh, but just the same, it is a stem, or whatever term you choose to use to distinguish it, and furthermore the blades project along the sides of the stem just as much in applicant's structure as [illegible] Unruh's. The extent of projection is relative. In regard to the interpretation of the other Unruh claims and their reading upon applicant's drawings, (see Figure 4) applicant desires to point out that Unruh should by no means be permitted to set up an imaginary point on his dolly [illegible] alleged upstanding central portion 15 begins [illegible]

1931

wall terminates, when as a matter of fact, the trough wall and upstanding stem are a single and continuous wall member. On the same parity of reasoning, how can the Examiner definitely determine where the stem portion of the Unruh disclosure terminates and where the upper rounded end begins. In Unruh, the bladed portion extends along the stem but it does not extend along the upper rounded portion. Likewise in the applicant's disclosure the blades extend along the stem, but not along the upper rounded portion. Where the stem ends and the rounded portion begins is a matter of degree and is so indefinite as to preclude the Examiner from stating that applicant has no stem with a rounded portion with blades extending along the sides of the stem. As a matter of fact, the blades do extend along the sides of the upstanding stem. Because the Unruh patent was applied for as an improvement upon applicant's construction is certainly no ground for permitting Unruh to obtain claims, the breadth of which is wholly incommensurate with the extent of his disclosure. If Unruh obtains claims which can be read by a broad interpretation of language upon the Snyder construction, then applicant should have the right to make such claims so as to contest with Unruh the claim of priority of invention of the subject matter covered by these claims. Certain of the claims copied designate the shape of the blades [illegible] as being lobe-shaped. The Examiner's attention is called to claims 5 and 7. According to Webster's New International Dictionary, the word "lobe" is defined as follows: "A projection or division of a some-what rounded form." Certainly applicant is warranted in considering [illegible] rounded [illegible]

they are properly termed lobe-shaped.

It was understood during a recent interview that the Examiner has consented to grant an interference with the Unruh patent.

Cancel claims 42 to 44 both inclusive.

Cancel claims 46 to 49 both inclusive.

Change the numeral of claim 45 to 26.

Reconsideration of claim 26 is asked. This claim sets forth the subject matter of the Unruh claims in a little different language and is certainly readable directly upon the applicant's disclosure.

Change the numeral of claim 50 to 27. This claim has been alowed.

Cancel claims 51 to 72 both inclusive and insert:-

29 30 ~~26~~. In a washing machine an agitator and power means for imparting alternate rotative movement thereto, said agitator consisting of a substantially disk-like body and a plurality of liquid impelling projections extending from one face thereof, said projections being of a maximum depth contiguous to the periphery of said body and having their free edges inclined inwardly to the center of the agitator.

18 30 31 ~~26~~. In a washing machine an agitator and power means for imparting alternate rotative movement thereto, said agitator consisting of a substantially disk-like body and a plurality of liquid impelling projections extending from one face thereof, said projections being of a maximum depth contiguous to the periphery of said body and having their free edges inclined inwardly to the center of the agitator, leaving the central portion free of water impelling projections.

Claims 28 and 29 are clearly patentable over the references of record which fail to disclose the peculiar characteristics of the liquid impelling projections which are of maximum depth contiguous to the periphery and having their free edges inclined inwardly. The central portion of said body free of water impelling projections of claim 29 is also novel.

Change the numerals of claims 73 and 74 to 30 and 31.

Allowance of these claims is asked and in addition, a declaration of the interference with Unruh is requested.

Respectfully submitted:-

Wallace R Lane

Attorney

June 10, 1925.

APPLICATION ROOM
JUN 12 1923
U.S. PATENT OFFICE

1377 10E

IN THE UNITED STATES PATENT OFFICE

RE APPLICATION OF
HOWARD T. SNYDER,
SER. NO. 568,158,
FILED JUNE 14, 1923,
Div. 25, Room 315.

WASHING MACHINES

AMENDMENT

Hon. Commissioner ofPatents,
Washington, D. C.

Sir:

Supplemental to the amendment of June 10, 1925, please amend as follows:

Claim 7, line 4, change "gyratator" to —liquid impeller—.

Present claim 16, lines 3 and 4, cancel "a liquid impeller for giving said substance and material turbulent motion", insert at the end of the claim ~~a~~ a shaft extending through said plate and a liquid impeller on said shaft for giving said substance and material turbulent motion.—

(E)

REMARKS

The foregoing amendment is submitted pursuant to an oral interview had with the Examiner. Claim 16 has been amended to bring out the combination between the plate and the liquid impeller shaft.

In view of the present condition of the case, it is asked that the interference be declared forthwith and any further action be deferred until the termination of the interference.

568,158

Respectfully submitted,

Wallace A. Lane

1379

Div. 25 Room 315 LDC:GB Paper No. 11

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications concerning this application should give the serial number, date of filing, and name of the applicant

MAILED
JUN 16 1925

Please find below a communication from the EXAMINER in charge of this application

Thomas E. Robertson
Commissioner of Patents

GPO 11—6020

Wallace R. Lane,
Marquette Bldg.,
Chicago, Ill.

Applicant: H. F. Snyder,

Ser. No. 568,158
Filed June 14, 1922
For Washing Machines

In response to amendments filed June 10 and 12, 1925:

Claims 14 and 15 are rejected in view of the patent to Coffield et al., Mar. 9, 1915, 1,131,466, (74-14-48.6). The rejected claims read directly upon the reference cited. If the applicant believes he has improved his drive and driving connection over the art cited, he should claim his alleged improvement per se, as mechanical movements have acquired a distinct status as a subject matter of invention.

The remaining claims in the case are allowed.

There are two claims in the case numbered as 23 by an oversight on the part of the applicant. The overlooked claim is in the amendment filed July 21, 1924.

Cancelling of claims 14 and 15 will place this case in condition for allowance.

L. D. C.

J. R. Clarkson

Examiner, Div. 25.

568 91

Dio. No. 25
Room No. 315

1#12

FEB 19 1926
U. S. PATENT OFFICE

Authority to Make Copies

Feb. 18, 1926

Hon. Commissioner of Patents,
Washington, D. C.

Sir:—

Please permit **Miss A. M. PARKINS**, Washington Loan and Trust Building, Washington, D. C., to examine and make copies in

Application of / Interference of } Howard F. Snyder

Improvement in

Filed June 14, 1922 Serial No. 568,158

and oblige.

Respectfully,

Wallace R. [illegible]

92

566 92

1383

4334

JUN 15 1926 U.S. PATENT OFFICE

PATENT OFFICE JUN 17 1926 DIVISION XXV.

IN THE UNITED STATES PATENT OFFICE

In re Application of
HOWARD F. SNYDER,
Ser. No. 568,158,
Filed June 14, 1922,
Div. 25, Room 315.

WASHING MACHINES.

A M E N D M E N T

Hon. Commissioner of Patents,
Present,

Sir:-

Responsive to Office Action of June 16, 1925, applicant amends as follows:

In the Specification, page 3, line 4, after "contents" insert:- in the embodiment illustrated in the drawings.

Page 5, at top of page insert the following as a new paragraph:-

"Fig. 3 is a sectional view showing portions of the operating mechanism."

Page 2 of the Amendment dated July 19, 1924, and filed July 21, 1924, line 8 from the bottom, cancel "sheet".

Rewrite claims 1, 2 and 3 as follows:-

1. The method of cleansing fabrics in a tub consisting in agitating a washing fluid in

568 98

such a way as to create positively driven violently flowing currents moving away from and back to the plane of the source of agitation, and also around the tub in one direction in a plane approximately parallel with the plane of agitation, and then causing it to move away from and back to the plane of the source of agitation and in a reverse direction in a plane approximately parallel with the plane of agitation so as to bodily and forcibly cause the fabrics in the tub to travel in substantially the same paths as the fluid, whereby thorough cleansing of the fabrics is effected without substantial material contact with rubbing surfaces.

2. In a washing machine, a tub containing a cleansing fluid and materials to be cleansed, a rotatable impeller in said tub comprising a substantially imperforate base, a projection of substantial height on one of the faces of the base and located adjacent to its periphery, and means for imparting alternating rotations to the impeller, the speed of actuation of the impeller and the depth of the projection being such as to produce, within the tub, positively driven, violent, upwardly, downwardly and circulatory flowing currents of the cleansing fluid moving first in one direction around the tub and then in an opposed direction alternately, on one side of the plane of the source of agitation and in such a manner as to forcibly cause the materials to bodily travel in substantially the same paths as the fluid, whereby thorough cleansing is effected without material contact with rubbing surfaces.

3. In a washing machine, a tub containing a cleansing fluid and material to be cleansed, a rotatable impeller in said tub comprising a

imperforate base, a plurality of outstanding impelling projections of substantial depth on one face of the base, the depth of said projection being greatest contiguous to the peripphery and decreasing toward the center of the base, and means for imparting alternating rotations to said impeller, the speed of actuation of the impeller and its position with relation to the center of the tub the depth of the projection being such as to produce, within the tub, positively driven violently flowing currents of the cleansing fluid, which are caused to move upwardly and downwardly and also around the tub in one direction, and then around the tub in the reverse direction on one side of the plane of the source of agitation, so as to bodily and forcibly cause the material to travel in substantially similar paths, whereby thorough cleansing of the material is effected ~~without material contact with rubbing surfaces~~ substantially suspended by movement of the fluid.

Add the following claims:-

4. A washing machine comprising in combination, a container having a substantially uninterrupted inner surface, a rotary reciprocatory disk-like impeller near the bottom of the container, motor-driven means extending through the bottom of the container by which the impeller is so driven as to violently force water in the container laterally and upwardly in one gyratory direction and then laterally and upwardly in an opposed direction, whereby the materials being washed will be suspended by the water and forced in one direction and then another and thoroughly cleaned while thus suspended.

5. A washing machine comprising in combination, a container having a substantially uninterrupted inner surface, a rotary reciprocatory disk-like impeller

Per K.

er, mounted adjacent the bottom of the container, so constructed and arranged that when water and materials to be cleaned are placed in the container and the impeller is reciprocated, the water will first be violently forced laterally and upwardly in one gyratory direction and then laterally and upwardly in an opposed gyratory direction, so that the materials being cleaned will be suspended by the movement of the water, and the water forced through and around the materials to thoroughly cleanse them, while said materials are substantially out of rubbing contact with the mechanical parts of the machine, and motor-driven means for rapidly driving the impeller.

Add D² c1 9

6. A washing machine comprising a container, a rotary reciprocatory disk-like impeller mounted near the bottom of the container, one or more flanges projecting upwardly therefrom, said flanges being so arranged on the impeller that when said impeller is driven, water in the container will be violently forced laterally and upwardly first in one gyratory direction and then laterally and upwardly in an opposed direction, whereby because of the agitation so produced clothes or other material placed in the container will be suspended by the water out of substantial contact with the container and impeller and thoroughly cleansed while suspended, and motor-driven means extending through the bottom of the container for driving the impeller.

7. A washing machine comprising in combination a container, a rotary reciprocating clothes impeller in said container, the said impeller having an axially extended working surface which is sufficient in extent relative to the depth of the container to positively and vigorously whip the washing fluid laterally and vertic-

an opposed direction, whereby the washing fluid is driven violently through the clothes, and motor-driven means for imparting rapid rotary reciprocative movements to said impeller.

Claim 7, (original 13) line 5, after "depressed" cancel - a; same line before "depressed" insert:- the

Cancel claims 14, 15, 19, 20, 21, 22, 23, 24, 25, 26 and 28. disregard 19-25 see letter of June 16/1926

Renumber claims 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17 and 18 as 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17, respectively.

Cancel the additional claim 29 in the amendment filed July 21, 1924, referred to in the next to the last paragraph of the last office action.

Renumber claims 27, 28, 29, 30 and 31 as 18, 19, 20, 21, and 22, respectively.

Add the following claims:-

29. In a washing machine comprising driving power means, a tub for containing a cleansing substance and materials to be cleansed, an impeller alternately rotated in the tub by said power means, the impeller having a substantially imperforate base and a projection extending from the surface of the base facing the material to be cleansed, said projection being of sufficient depth to cause during the alternate rotation of the impeller a violent circulatory swirling of the cleansing [illegible] with rubbing

surfaces, the material to be cleansed turning over and over during the cleansing action.

[illegible]. In a washing machine a tub having sides and a bottom, a driving shaft extending into the tub through the bottom, an agitator located adjacent said bottom and fixed to oscillate with said shaft, power means for imparting to said shaft and agitator a rotational oscillatory movement, one or more blades extending upwardly from the upper face of said agitator, said blade or blades being of greatest height adjacent the marginal edge of said agitator and decreasing in height toward the center of the agitator and merging adjacent said center in an elevated portion of the agitator, the rotary oscillation of the agitator causing the blade or blades to force the liquid and material being washed outwardly in a lateral direction, then upwardly along the side of the tub, then laterally of the tub and back again toward the agitator, this cycle being continuously repeated, with a movement of the tub contents also in one circumferential direction around the tub and [illegible] the tub.

[illegible]. In a washing machine, a tub having side walls and a bottom, a driving shaft extending through said bottom into the tub, an agitator fixed to said shaft to oscillate therewith, power means for oscillating said shaft and agitator, said agitator comprising a substantially circular base having an upstanding central portion, blades extending upwardly from the upper face of said base, the blades being of greatest height adjacent the marginal edge of the base, decreasing in height toward the center and merging into said upstanding central portion, the union between the [illegible] and said shaft permitting [illegible]

al of the former from the latter by an upward movement, the oscillation of the agitator causing the blades to set up a violent movement of the fluid and tub contents outwardly away from the agitator, upwardly, inwardly and then back toward the agitator, there also being superposed on this circulatory movement a movement of the fluid and tub contents first in one direction circumferentially of the tub and then in the other, so that the articles being washed will be thoroughly cleansed without any material rubbing of the blades thereagainst.

25. In a washing machine, a tub, a driving shaft extending into the tub, an agitator secured to said shaft to oscillate therewith, power means for oscillating said shaft and agitator, said agitator comprising a substantially circular body portion having blades extending therefrom on the face presented to the material being washed, the blades adjacent the marginal edge of the body portion being of a substantial dimension in a direction at right angles to the body portion, said body portion being free of any holes or openings of substantial dimensions, said blades and adjacent portions of the body portion of the agitator when the agitator is oscillated throwing the fluid in the tub, and material being washed, violently outwardly from the edge of the agitator whereby it will flow in circulatory paths away from the agitator, along the sides of the tub, then inwardly and back to the agitator, this cycle being thereby repeated.

I³ cl. 2

REMARKS.

Claims 1, 2 and 3 have been rewritten to present the same in better form of language without changing the scope of the claims as allowed. The Examiner will readily

note by comparison of the claims that [illegible] that new claims 1, 2 and 3 are clearly allowable for the same reason as the three claims which have been allowed.

New claims 4, 5, 6 and 7 are introduced as the result of an understanding reached with the Examiner during a personal interview. As pointed out at that time, applicant is the first to introduce a washing machine in which the agitation of the cleansing liquid is sufficiently violent and at the same time adequately controlled as to effect a suspension of the articles being cleaned in the said water, while the water is forced violently therethrough. All of this is accomplished while the materials being washed are substantially out of rubbing contact with the mechanical parts of the machine. The art of record fails absolutely to disclose the motor-driven impeller which operates in such a manner as to violently force the water in the container laterally and upwardly in one gyratory direction and then laterally and upwardly in the opposed direction. It was understood at the interview that these claims would probably be allowed.

The amendment to former claim 7 (Original 13) is to correct an obvious error in that the article "a" should precede instead of follow the word "depressed". This change is merely made in the interest of correctness.

Former claims 14, 15 and 19 to 22, have been cancelled.

23 - 26

New claims 23 to 26, are added in order to present applicant's invention from a slightly different angle. These claim clearly brings out the structure for producing and the resultant function of the production in the tub of a violent circulatory swirling of the [illegible]

ing substance and material in the tub to effect thorough cleansing without substantial contact with rubbing surfaces, the material to be cleansed turning over and over during the cleansing action.

It is believed the Examiner will readily agree that these claims are allowable for reasons supporting the allowance of claims heretofore presented in a slightly different way.

It is believed this application is in condition for allowance, and the passing of the same to issue at an early date is respectfully requested.

Respectfully submitted.

Wallace R. Lane

June 15 1926.

14 1401

PATENT OFFICE JUN 17 1926 DIVISION XX

UNITED STATES PATENT OFFICE

In re Application of
HOWARD F. SNYDER,
Ser. No. 568,158,
Filed June 14, 1922,
Div. 25, Room 315.

WASHING MACHINES

JUN 17 1926 U.S. PATENT OFFICE

SUPPLEMENTAL OATH UNDER RULE 48

STATE OF [illegible]
County of [illegible] ss

HOWARD F. SNYDER being duly sworn deposes and says that he is the applicant named above; that the subject-matter of all amendments filed heretofore in this application or concurrently herewith was part of his invention, was invented before he filed his original application above identified; was not known or used before his invention, was not patented or described in a printed publication in any country more than two years before his application; was not patented in any foreign country on an application filed by himself or his legal representatives or assigns more than twelve months prior to his application; was not in public use or on sale in this country for more than two years before the date of his application and has not been abandoned.

Howard F. Snyder

Subscribed and sworn to before me this 9th day of June, 1926.

[illegible]
Notary Public.
My Commission [illegible]

568158

UNITED STATES PATENT OFFICE

In re Application of
HOWARD F. SNYDER,
Ser. No. 568,158,
Filed June 14, 1922,
Div. 25, Room 315.

WASHING MACHINE

1928 U.S. PATENT OFFICE

AFFIDAVIT UNDER RULE 75

STATE OF —ana
County of Jasper } ss

HOWARD F. SNYDER being duly sworn deposes and says that he is the inventor of the invention disclosed in the above identified application; that prior to February 23, 1922 (the filing date of Hirschey patent No. 1,464,362) a drawing of the liquid impeller or agitator and lower portion of the tub was made under his directions at Newton, Iowa, in the plant of The Maytag Company, the assignee of this application, which liquid impeller was circular in plan view with upstanding projections, vanes or ribs on that face presented toward the clothes being washed, and so constructed and arranged that when given an oscillatory rotation by a suitable shaft operated by a motor, or the like, the water in the tub together with the clothing being washed would be given a violent swirling gyratory action for thoroughly cleansing the clothing without material rubbing action; and that the attached blueprint (marked Exhibit A) was made from the original tracing made as stated above prior to February 23, 1922; that prior to February 23, 1922 a machine was actually constructed embodying the liquid impeller or agitator of said blueprint Exhibit A, and operated at the said Maytag Company plant, with water and clothing within the tub, and functioned successfully in the manner described above and set forth in the above identified application; that he does not know and does not believe

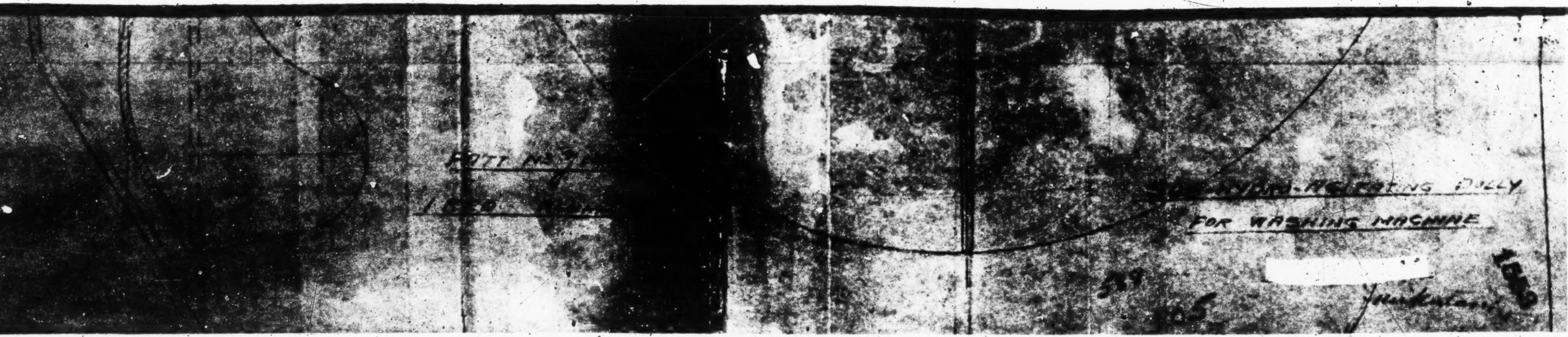
that the invention has been in public use or on sale in this country, or patented or described im a printed publication in this or any foreign country for more than two years prior to his application, and that he has never abandoned the invention.

Howard F Snyder

Subscribed and sworn to before me this 9th day of June, 1926.

Notary Public.
My Commission Expires July 4th, 1927

Exhibit A
Exhibit A


FOR WASHING MACHINE

U.S. PATENT OFFICE JUN 15 1926 DIVISION XXV.

IN THE UNITED STATES PATENT OFFICE

In re Application of
HOWARD F. SNYDER,
Ser. No. 568,158,
Filed June 14, 1922,
Div. 25, Room 315.

WASHING MACHINE.

The Commissioner of Patents,

Present;

Sir:-

By the amendment filed June 15, 1926, former claims 19 to 25, both inclusive, were through inadvertence directed to be cancelled. The Examiner is requested to disregard the instructions to cancel the said claims and to retain them in the case as they now are, and to consecutively renumber all the claims in the case to conform to the cancellation of such other claims as were directed by said amendment to be cancelled.

Very respectfully,

Wallace R. Lane

Attorney.

June 16, 1926.

5681

PATENT OFFICE 1926

PATENT OFFICE JUL 21 1926 DIVISION XXV.

UNITED STATES PATENT OFFICE

In the Application of
HOWARD F. SNYDER,
Ser. No. 568,158,
Filed June 14, 1922,
Div. 25, Room 315.

WASHING MACHINES

A M E N D M E N T

Hon. Commissioner of Patents,
Washington, D.C.

Sir:-

Applicant amends as follows:-

Claim 6, line 4, after "said" insert:- flange or; same claim, line 9, change "thin material" to- other materials.

Please add the following claim:-

~~37~~ 27. A washing machine comprising in combination a container, a rotary-reciprocatory impeller near the bottom of the container, and impeller-driving means extending through the bottom of the container, said impeller having means operable when it is reciprocated by said driving means to force water in the container upwardly in one gyratory direction, whereby the materials being washed will be suspended by the water and forced in one direction and then another and thoroughly cleansed while thus suspended.

R E M A R K S.

Claim 6 has been amended to

errors and new claim 27 is drawn to the subject matter which the Examiner has already indicated as being allowable.

There appears to be some confusion in the numbering of the claims and the Examiner is therefore requested to consecutively renumber all of the claims now standing.

Respectfully submitted,

Wallace R. Lowe

July 20, 1926.

Div. 25 Room 314

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents.

July 23, 1926.

Applicant: Howard P. Snyder

Ser. No. 568158
Filed June 14, 1922.
For Washing Machines.

Wallace R. Lane,
Marquette Building,
Chicago, Illinois.

MAILED
JUL 23 1926

In response to amendment filed June 15, 1926:

The following Claim is suggested under Rule 96, which applicant is required to file within 20 days from date otherwise he will be held to have disclaimed the subject matter thereof or any matter not patentably different therefrom.

A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle, comprising a lower disk-like portion having a stem rising therefrom and merging into said disk-like portion at its lower end and circumferentially spaced ribs carried by said dolly and extending radially of said disk-like member.

Claims 2,3,6,33 and 34 are rejected as not warranted by the original disclosure since no mention is made of the use of only one blade. Of these claims 2, 3, and 33 do not appear to be patentably different from applicant's copending application which is involved in interference. Claims 6 and 34 are further rejected as alternative by the inclusion of "one or more."

It is apparent that applicant is attempting to cover a species which has not been disclosed in this application as the specification merely discloses a plurality of blades and does not describe or suggest that one blade might be used.

Claim 11, original 15, line 7, change "liquid impeller" back to "gyratory." The change appears to have been made in error.

The remaining Claims 1,4,5, 7 to 32, inclusive, 35 and 36 appear to be allowable.

J. Robertson
Examiner.

17

ATTORNEY
JUL 30
U. S. PATENT OFFICE

UNITED STATES PATENT OFFICE

In re Application of
HOWARD F. SNYDER,
Ser. No. 568,158,
Filed June 14, 1922,
Div. 25, Room 314.

WASHING MACHINES

POWER TO INSPECT

July 27, 1923.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

Please permit Miss A. M. Parkins, of Washington Loan & Trust Building, Washington, D. C. to have access to the file of the above identified application for the purpose of making copies of some of the papers therein.

Respectfully,

Wallace R. Lane

568158

U.S. PAT. APPLD. APR 3 1928

PATENT OFFICE AUG 10 1926 DIVISION XXV

UNITED STATES PATENT OFFICE

In re Application of
HOWARD M. SNYDER,
Ser. No. 582,158,
Filed June 14, 1922,
Div. 25, Room 314.

WASHING MACHINES

AMENDMENT

August 7, 1926.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

Responsive to Office Action of July 27, 1926, applicant amends as follows:

Claim 11, original 13, line 7, change "liquid impeller" to - gyratory.

Add the following claim:

38. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion wall below the top of said receptacle, comprising a lower disk-like portion having a stem rising therefrom and merging into said disk-like portion at its lower end and circumferentially spaced ribs carried by said dolly and extending radially of said disk-like member.

REMARKS

The claim suggested under Rule 96 by the Examiner is presented herewith, applicant reserving the right to present such claims appearing proper after inspection of the [illegible] enclosure.

The objection as to claims

is not understood. As is well settled in Patent Office practice, breadth of a claim is no ground for rejection. If applicant's impeller is shown in the drawings with four blades, it clearly has one blade, as the greater includes the lesser. When this application was filed applicant had in mind that he did not wish to be limited to any particular number of blades, but might use any number, one or more, as is clearly seen in lines 12 and 13, of page 8 of the specification, where is stated - "In the embodiment shown there are four of these blades, but any number may be used as desired." This clearly furnishes foundation for such recitations as "a projection" and "one or more blades", etc. in the claims. Even without such statement it is believed to be obvious that applicant should be permitted to claim his invention broadly enough to afford protection against others using only a single blade where such single blade is so constructed and used as to accomplish the purpose and spirit of applicant's invention.

In the absence of a reference anticipating applicant's structure applicant should be entitled to word his claims as broadly as possible. It is believed upon reconsideration the Examiner will see the correctness of applicant's position and withdraw this objection.

Respectfully submitted,

Wallace R. Lane

LFM/O

1142 11

1423

Div. 25 Room 314 DEPARTMENT OF COMMERCE Paper No. 18

Address only "The Commissioner of Patents, Washington, D. C." and not any official by name

UNITED STATES PATENT OFFICE
WASHINGTON

All communications respecting this application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the EXAMINER in charge of this application

Thomas E. Robertson
Commissioner of Patents.

Sept. 8, 1926.

Applicant Howard F. Snyder

Ser. No. 568,158
Filed June 14, 1922
For Washing Machines

Wallace R. Lane,
Marquette Bldg.,
Chicago, Ill.

MAILED

SEP 8 1926

In accordance with the provisions of Order No. 2308, dated March 12, 1917, which reads in part as follows:

* * * * * * * * *

Obvious informalities in the application may be corrected by the examiner, but said correction must be in the form of an amendment, approved by the Principal Examiner in writing, placed in the file, and made a part of the record. The changes specified in the amendment will be entered by the clerk in the regular way.

* * * * * * * * *

the changes, hereinafter specified, are made by the examiner in the application above identified.

Should these changes not be satisfactory to the applicant, appropriate amendment may be prepared under the provisions of Rule 78, provided the specification has not been printed.

The application has been amended as follows:

Claim 21, line 8, change "their" to "the and change "to" to of.

Claim 22, line 7, change "to" to of.

I. F. Mitchell
Acting Examiner.

E.H.T.

568113

INTERFERENCE.

Interference No. 54316 Paper No. 12

Name, Howard P. Snyder

Serial No. 568,158

Title, Washing Machines

Filed, June 14, 1922

Interference with Carmelina C. Marsh

DECISIONS OF

Primary Examiner, as to counts 2, 4, 5, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31 Interference dissolved Dated, MAY 2 8 1927

Asst. Examiner, Dated,

Ex'r of Interferences, Favorable to C Dated, Oct 12 28.

Appeal Off. as to Cts. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31 Dated, Dec. 21 1929

Comm'r, Appeal as to Cts. 12, 13, 14 Dated,

Aff'd as to Cts. 12, 13, 14

REMARKS:

This should be placed in each application or patent involved in interference in addition to the decisions by Primary Examiner.

568158

Div. 25 Room 314 RET:WJ

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Present Assignment

Please find below a communication from the EXAMINER in charge of this application

Commissioner of Patents

Wallace R. Lane,
Marquette Bldg.
Chicago, Ill.

PATENT OFFICE
OCT

The case, above referred to
of Interference because it is
hereafter specified. The question
in conformity with the Rules.

as No. 54316

the statement demanded by rule 110
with the subject of invention, and
indorsed on the envelope.
interference is

1. The method of
sisting in
to operate
resin
vessel
direction
with
away
solution
and
of
with
and
of
mixture.

2. A
container
face,
material
and
and
from
mixture.

that the materials being cleaned will be suspended by the movement of the water, and the water forced through and around the materials to thoroughly cleanse them, while said materials are substantially out of rubbing contact with the mechanical parts of the machine, and motor-driven means for rapidly driving the impeller.

4. A washing machine comprising in combination a container, a rotary reciprocating clothes impeller in said container, the said impeller having an axially extended working surface which is sufficient in extent relative to the depth of the container to positively and vigorously whip the washing fluid laterally and vertically in an opposed direction, whereby the washing fluid is driven violently through the clothes, and motor-driven means for imparting rapid rotary reciprocative movements to said impeller.

5. In a washing machine the combination of a tub for containing a cleansing substance and the materials to be cleansed, said tub having an outwardly and upwardly inclined portion, an impeller cooperating with the said inclined portion of the tub to force said cleansing substance and materials to be cleansed outwardly in a direction substantially parallel with said inclined portion, and power means for oscillating said impeller.

6. In a washing machine the combination of a tub adapted to contain wash water and goods to be washed, said tub having a flared portion, a liquid impeller in said tub, having a depressed portion, said liquid impeller co-operating with said flared portion to swirl said wash water and goods with a substantially gyratory movement, and power means to alternately rotate said liquid impeller.

7. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, a liquid impeller, mechanism driven by said power means for oscillating said liquid impeller, said liquid impeller having flanges and a radially depressed portion operative to upwardly swirl said cleansing substance and material.

8. In a washing machine comprising a driving power means, the combination of a tub for containing washing and washable materials, a liquid impeller, means operable to alternately rotate said liquid impeller, said liquid impeller being provided with an upstanding flange and a depressed portion on each side of said flange and operative to swirl said materials with a substantially gyratory movement.

9. In a washing machine comprising driving power means, the combination of a tub for containing a cleansing substance and materials to be cleansed, a liquid impeller, mechanism driven by said power means for alternately rotating said liquid impeller, said liquid impeller having upwardly and radially

extending flanges and a radially depressed surface operative to upwardly swirl said cleansing substance and materials.

10. In a washing machine comprising driving power means, the combination of a liquid impeller operated by said means, a tub for containing water and goods to be washed, said tub being relatively shallow with respect to its horizontal dimension, said liquid impeller operable to maintain said goods in suspension above the impeller in the water while being swirled about said tub with said water.

11. In a washing machine comprising driving power means, the combination of a liquid impeller operated by said means, a tub for containing wash water and goods to be washed, said tub having a tapered lower portion, said liquid impeller having a flared portion, said tapered and flared portions co-operating to swirl said water and goods with a substantially gyratory movement in said tub.

12. In a washing machine comprising driving power means, the combination of a tub adapted to contain washing and washable materials, a liquid impeller in said tub and operated by said means, said liquid impeller having a centrally raised portion and radially depressed portion, and operable to swirl said materials with a substantially gyratory movement.

13. In a washing machine having driving power means, the combination of a tub adapted to contain washing and washable materials, a liquid impeller in said tub and operated by said means, said liquid impeller having a centrally raised portion, a radially depressed portion and flanges extending radially from said centrally raised portion said liquid impeller operable to swirl said materials with a substantially gyratory movement in said tub.

14. In a washing machine having driving power means, the combination of a tub adapted to contain washing and washable materials, a liquid impeller in said tub and operated by said means, said liquid impeller having a central conoidal portion, an inclined peripheral portion and an intermediate trough portion, said liquid impeller operating to swirl said materials with a substantially gyratory movement in said tub.

15. In a washing machine comprising a driving power means, a tub, an alternating rotary liquid impeller having a plate formed with an annular depression, a raised central portion and upstanding flanges in said depression, said plate, depression, central portion and flanges operating on the contents of the tub to give the contents a gyratory movement.

16. In a washing machine comprising driving power means, a tub, a liquid impeller therein and operated by said means, the liquid impeller and tub having cooperating flared portions for upwardly swirling the contents of the tub.

Ser No. 516,150

17. A dolly for a [illegible] adapted to be disposed in a liquid [illegible] comprising a dish-shaped member having a central upstanding tapered stem with a rounded upper end, ribs extending across said dish and upwardly along the side of said stem and

18. A dolly for a washing machine comprising a cup-shaped disk with a frusto-conical portion rising from the center thereof, a substantially cylindrical stem projecting centrally [illegible] and terminating in a rounded top, said stem having radial ribs projecting therefrom and extending along the sides thereof, said ribs being tapered throughout the length of said stem and extending in lobe-shaped form across the surface of said disk.

19. An agitating member for a washing machine comprising a cup-shaped disk having a frusto-conical portion rising from the center thereof, the vertical elements of which are concave so that the surface of said portion merges into the surface of said disk, and a round upwardly tapering portion projecting above said frusto-conical portion and terminating in a rounded surface, and narrow radial wings projecting from said latter portion and extending along the sides thereof and across the surface of said disk and having rounded outer edges merging into the concave surface of said disk.

20. A dolly for a washing machine comprising an annular trough, a stem rising centrally from said trough and having a plurality of circumferentially spaced radial wings projecting therefrom and extending along its sides and across the surface of said trough, the top surface of said wings above said trough curving downwardly and inwardly.

21. A dolly for a washing machine comprising a dish-shaped [illegible] merging into the [illegible] terminating in an upper [illegible] extending vertically along said [illegible] and thereof and [illegible] of the lower side is [illegible] by the upper surface thereof along [illegible] are concave.

22. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle comprising a dish-shaped member having a central upstanding tapered stem with a rounded upper end, ribs extending across said dish and upwardly along the side of said stem and

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having rounded upper edges merging into the rounded surface of said stem.

24. A tub for a washing machine, comprising a bottom portion, side portions, and an upwardly inclined portion between the bottom and side portions, and means co-operating with the inclined portion for causing the contents of the tub to travel upwardly thereon.

25. In a washing machine an agitator and power means for imparting alternate rotative movement thereto, said agitator consisting of a substantially disk-like, imperforate body, and a plurality of liquid impelling projections extending from one face thereof, said projections being of a maximum depth contiguous to the periphery of said body and having their free edges inclined inwardly to the center of the agitator.

26. In a washing machine an agitator and power means for imparting alternate rotative movement thereto, said agitator consisting of a substantially disk-like imperforate body and a plurality of liquid impelling projections extending from one face thereof, said projections being of a maximum depth contiguous to the periphery of said body and having their free edges inclined inwardly to the center of the agitator, leaving the central portion of said body free of water impelling projections.

27. In a washing machine, the combination of a tub, an actuating shaft upstanding through the bottom of said tub, a block on said shaft above the tub bottom and an agitator having a centrally disposed upstanding dome and liquid impelling means radiating therefrom, said dome being provided at its underside with a socket adapted to fit over said block.

28. In a washing machine, the combination of a tub, an actuating shaft upstanding through the bottom of said tub, a block secured to said shaft above the tub bottom and an agitator having a centrally disposed upstanding dome and liquid impelling means radiating therefrom, said dome being provided with a socket to receive said block for forming a driving connection between said shaft and agitator.

29. In a washing machine, a tub having side walls and a bottom, a driving shaft extending through said bottom into the tub, an agitator fixed to said shaft to oscillate therewith, power means for oscillating said shaft and agitator, said agitator comprising a substantially circular base having an upstanding central portion, blades extending upwardly from the upper face of said base, the blades being of greatest height adjacent the marginal edge of the base, decreasing in height toward the center and merging into said upstanding central portion, the union between the agitator and the shaft permitting removal of the former from the latter by an upward movement, the oscillation of the agitator causing the blades to set up a violent movement of the fluid and tub contents outwardly away from the agitator, upwardly, inwardly, and then back toward the agitator, there also being superposed on this circulatory movement a movement of the fluid and tub contents first in one direction circumferentially of the tub and

then in the other, so that the articles being washed will be thoroughly cleansed without any material rubbing of the blades thereagainst.

30. In a washing machine, a tub, a driving shaft extending into the tub, an agitator secured to said shaft to oscillate therewith, power means for oscillating said shaft and agitator, said agitator comprising a substantially circular body portion having blades extending therefrom on the face presented to the material being washed, the blades adjacent the marginal edge of the body portion being of a substantial dimension in a direction at right angles of the body portion, said body portion being free of any holes or openings of substantial dimensions, said blades and adjacent portions of the body portion of the agitator when the agitator is oscillated throwing the fluid in the tub, and material being washed, violently outwardly from the edge of the agitator whereby it will flow in circulatory paths away from the agitator, along the sides of the tub, then inwardly and back to the agitator, this cycle being continuously repeated.

31. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle, comprising a lower disk-like portion having a stem rising therefrom and merging into said disk-like portion at its lower end and circumferentially spaced ribs carried by said dolly and extending radially of said disk-like member.

The interference involves your application above identified and

An application of Cornelius C. Unruh of Freeman, South Dakota, for Dolly for Washing Machines, whose attorneys are Williamson, Reif & Williamson, 925 Metropolitan Life Building, Minneapolis, Minnesota.

The relation of the counts of the interference to the claims of the respective parties is as follows:

Counts	Snyder	Unruh
1	1	15
2	4	16
3	5	17
4	7	18
5	8	19
6	9	20
7	10	21
8	11	22
9	12	23
10	13	24
11	14	25
12	15	26
13	16	27
14	17	28
15	19	29
16	20	30

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Ser. No. 568,158 -7-

Con't

Counts	Snyder	Unruh
12	21	1
13	22	2
14	23	3
15	24	4
16	25	5
17	26	6
18	27	7
19	28	8
20	29	9
21	30	31
22	31	32
23	32	33
24	33	34
25	34	35
26	35	36
27	36	37
28	38	14

Counts compared J. F. Mitchell

Acting Examiner, Div. 35.

UNITED STATES PATENT OFFICE

In re Application of
HOWARD F. SNYDER,
Ser. No. 568,158,
Filed June 14, 1922,
Div. 25, Room 314.

WASHING MACHINES

DOCKET DIVISION JUN 13 1927

AMENDMENT

June 11, 1927.

Hon. Commissioner of Patents,
Washington, D. C.

Applicant amends as follows:

Please cancel claims 21, 22, 25, 28 and 32.

Rewrite claims 4, 7, 13, 14, 20, 29, 31, 39 and 34 as follows:

4. A washing machine comprising in combination, a container having a substantially uninterrupted inner surface, a rotary reciprocatory disk-like impeller near the bottom of the container having upstanding flanges thereon so arranged as to violently force water in the container laterally and upwardly in one gyratory direction and then laterally and upwardly in an opposed direction, whereby the materials being washed will be substantially suspended by the water and thoroughly cleaned while thus suspended, and motor-driven means extending through the bottom of the container for rotatably reciprocate the impeller. Add F4 cl

7. A washing machine comprising in combination a container, a [illegible] reciprocating impeller in said container

having upstanding flanges thereon of substantial area and an axially extended working surface so arranged as to positively and vigorously force the washing fluid laterally and vertically in opposed directions whereby the washing fluid is driven violently through the clothes while they are out of substantial contact with the impeller, and motor-driven means for imparting rapid rotary reciprocative movements to said impeller.

13 41. In a washing machine comprising in combination a tub for containing water and goods to be washed, a rotary reciprocatory impeller in the tub having flange-like means extending therefrom of substantial height in a direction at right angles to the body of said impeller and elongated to provide faces of considerable area for action against the water when the impeller is reciprocated, whereby the water is forced violently laterally from the impeller in gyratory paths so that the goods to be washed will be suspended in the circulating water and out of substantial contact with the impeller, and [illegible] for rotatably reciprocating the impeller.

14 42. In a washing machine comprising in combination, a tub for containing wash water and goods to be washed, and having an inclined lower portion, a rotary oscillating impeller for moving horizontally elongated flanges of such length and height and so constructed and arranged as to present to the water working faces of substantial area whereby the impeller when oscillated will vigorously drive the water and goods laterally and vertically in circulatory paths and force the water through and around the goods and cleanse them while out of substantial contact with the impeller, and motor-driven means for oscillating the impeller.

15 43. In a washing machine comprising a tub for containing wash water and goods to be washed and having an inclined portion, an oscillating liquid impeller in said tub having [illegible] pelling flanges thereon of substantial facial area [illegible]

and arranged as to forcibly swirl the water and goods in circulatory paths, the impeller and inclined portion cooperating to throw the water and goods laterally, upwardly, and inwardly, a shaft secured to the impeller, and motor-driven means to oscillate the impeller.

44. In a washing machine, a tub for containing wash water and goods to be washed, an oscillatory disk-like agitator in said tub near the bottom thereof and having a plurality of upstanding water-impelling projections extending from one face thereof, said projections being of substantial height contiguous to the periphery of the agitator and decreasing in height toward the center whereby side faces of substantial area are provided, and while the agitator is oscillated the water and goods will be vigorously forced laterally upwardly in gyratory paths to violently force the water through, between and around the goods and thoroughly cleanse them while they are sustained in the water free from any substantial contact with rubbing surfaces, and motor-driven means for oscillating the agitator.

45. In a washing machine a tub for containing wash water and goods to be washed, a rotary oscillatory impelling agitator near the bottom of the tub and having a centrally disposed upstanding dome and upstanding impelling means of substantial height and length to provide impelling faces of substantial area so arranged that when the agitator is oscillated said faces in conjunction with the rest of the agitator will cause the contents of the tub to move outwardly and upwardly in gyratory paths and wash the sustained goods without material rubbing action, a drive shaft extending through the bottom of the tub, a block on said shaft, the dome being provided with a socket to removably receive the block to drive the agitator, and motor-driven means to oscillate the agitator.

46. In a washing machine, a tub for receiving wash water and goods to be washed, a rotary oscillatory agitator in the tub comprising a lower disk-like portion having a stem rising therefrom with its top portion well below the top of the tub and merging into said disk-like portion at its lower end, said disk-like portion having upstanding circumferentially spaced radial flanges of substantial height and facial area, said flanges being so arranged on the agitator as to throw the water and goods laterally, upwardly, inwardly and downwardly in gyratory paths and force the water through, between and around the goods to thoroughly cleanse them while they are circulated out of substantially rubbing contact, a shaft extending through the bottom of the tub and into said stem, and motor-driven means for oscillating the shaft and agitator.

47. In a washing machine, a tub having a substantially uninterrupted inner surface and adapted to contain cleansing liquid and materials to be washed, the bottom of the tub merging smoothly into the sides, an oscillatory liquid impeller mounted adjacent the bottom of the tub, having on its upper surface upstanding wing-like means of substantial height and length so constructed and arranged that when the impeller is given a rapid rotary oscillatory movement the cleansing liquid and materials to be washed will be violently forced laterally from the impeller then upwardly along the side of the tub, then away from the tub side and back toward the impeller, this cycle being continuously repeated to force the cleansing liquid through and around the materials to be washed to thoroughly cleanse them while they are substantially out of rubbing contact with the impeller, and motor-driven means for imparting to said impeller a rapid rotary oscillatory movement.

Cl. 12

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REMARKS

Claims 29, 32, 35 and 36 are being cancelled in view of the Examiner's decision that they do not read on Snyder's

New claims 39, 40, 41, 42, 43, 44, 45, 46 and 47 [illegible] 9, 8, 13, 14, 30, 32, 31, 36 and 38, respectively, [illegible] counts 3, 4, 10, 11, 18, 25, 27, 31 and 34, respectively, of the issue of the Unruh -vs- Snyder interference [illegible] rewritten to overcome the Law Examiner's objections [illegible] counts in his decision of May 26, 1937. These claims are clearly patentable for the following reasons:

Claim 39

Claim 39 is rewritten count 2, against which count the Law Examiner held the most pertinent patents of the many cited in Unruh's motion to dissolve to be Coffield, et al, and Doughty, et al. Doughty, et al has been sworn back of by an affidavit under Rule 75 being filed concurrently herewith under permission of the Law Examiner. Coffield, et al, merely shows an old fashioned peg-type-dolly machine which could not possibly accomplish Snyder's results. The Law Examiner's criticism of count 2 was that it depended too much on the way in which the agitator was driven. This criticism has been overcome in claim 39, which recites differences in positive structure over Coffield, et al. For example, this claim recites the impeller as having "upstanding flanges thereon so arranged as to violently force water in the container laterally and upwardly in one rotatory direction, and then laterally and upwardly in an opposed direction, whereby the materials being washed will be substantially swept about by the water and thoroughly cleansed while thus agitated." This claim clearly differentiates [illegible] Coffield [illegible] structure and operation and is [illegible]

-3-

fluid laterally and vertically in

claim is now allowable over such

Claim 37

This claim is

ofWed by him against

et al. Doughty, et al,

reference.

In Hanna the agitator

reetion and hence is incapable of

sults. This claim in addition

ences in action upon the water, also

impeller is a rotary reciprocatory

driven means that rotatably

claim is accordingly clearly

all of the other references.

Claim 42

Claim 42 is counted on of said

overcome the Law Examiner's objections

held against count 11 and Hanna. It is

11 did not bring out that the impeller oscillates, or means to oscillate the same. The propeller of Nielsen rotates continuously in one direction and is for an entirely different purpose. Claim 42 recites "a rotary oscillatory impeller" and "motor-driven means for oscillating the impeller," in addition to the elongated flanges on the impeller and the very different action set up in the water. This claim is now clearly allowable over Nielsen and all of the other references, of which the Law Examiner deemed Nielsen the closest.

Claim 43

Claim 43 is count 18 of said interference rewritten to avoid the Law Examiner's criticisms thereagainst. The references held against count 18 by the Law Examiner were Nielsen and Wolcott. As pointed out above the propeller of Nielsen rotates continuously in one direction. The "oscillating" liquid impeller is brought out in claim 43 as well as the "Motor-driven means to oscillate the impeller." The same objection applies to Wolcott whose dasher operates only in one direction. Claim 43 also brings out that the impeller has "impelling flanges thereon of substantial facial area so constructed and arranged as to forcibly swirl the water and goods in circulatory paths, the impeller and inclined portion cooperating to throw the water and goods laterally, upwardly and inwardly." The action in each of Nielsen and Wolcott is entirely different. Nielsen is merely a mixer and Wolcott washes dishes or other articles merely by splashing the water thereover. Claim 43 is clearly allowable.

Claim 44

Claim 44 is count 25 of said interference rewritten to overcome the objections held thereagainst. Mears 380,446

was appropriate by the Law Examiner to be the nearest reference to count 45 of the multitude of references cited by Unruh in his motion to dissolve. In Mears the agitator is normally in the upper portion of the tub and rests upon and bears down upon the clothes to clean them by a rubbing action. In fact Mears calls his agitator a rubber. It is obvious that it would be impossible to accomplish [illegible] in the Doty machine.

Claim 44 [illegible]

the agitator is [illegible]

projections of [illegible]

of the agitator and [illegible]

whereby side faces of [illegible]

the agitator is oscillated [illegible]

forced laterally [illegible]

the water through, outward and around the [illegible]

cleanse them while they are [illegible]

any substantial contact with [illegible]. This [illegible]

action is disclosed in the Mears patent.

Claim 45

Claim 45 is count 37 of said interference rewritten to overcome the objections thereto. The references considered by the Law Examiner as coming the nearest to count 37 were Doughty, et al, Pegg (Brit.) and Voss. Doughty, et al, is no longer a reference against Snyder. Pegg, in addition to not being capable of accomplishing Snyder's operation and [illegible] rotates continuously in one direction. Claim 45 brings out that the agitator is a "rotary oscillatory impelling agitator" and that Snyder's machine has "motor-driven means to oscillate the agitator," as well as the clothes' action related thereto impossible in such a dough mixer as shown by Pegg.

Voss shows nothing more than a mounting

old fashioned peg-type-dolly. The action in Snyder's machine is so different from the machine shown in Voss' patent as to hardly require comment. As distinguished from Voss' pegs or pins claim 45 recites the agitator as having "upstanding impelling means of substantial height and length to provide impelling faces of substantial area so arranged that when the agitator is oscillated said faces in conjunction with the rest of the agitator will cause the contents of the tub to move outwardly and upwardly in gyratory paths." This is clearly not shown or suggested in either Voss or Pegg. This claim is allowable.

Claim 46.

Claim 46 is count 31 of said interference rewritten to remove the objections thereto. The references held to be the nearest to count 31 were Newton (Brit.) and Doughty, et al, the latter of which has been sworn back of. The Newton agitator rotates continuously in one direction and for this and other reasons could not accomplish Snyder's results. Claim 46 recites "a rotary oscillatory agitator" and "motor-driven means for oscillating the shaft and agitator." This, as well as the distinctly different action on the water recited in this claim, Newton does not have. Claim 46 is clearly patentable.

Claim 47.

Claim 47 is count 24 of said interference rewritten to patentably differentiate from the references held thereagainst and obviate the Law Examiner's objections. The reference considered by the Law Examiner as being the nearest of those cited in Unruh's motion to dissolve was Wolcott. The machine shown in the Wolcott patent has a "dasher" 13 which rotates continuously in one direction. Claim 47 recites "an oscillatory liquid impeller" and "motor-driven means for

[illegible] said impeller a rapid rotary oscillatory movement. [illegible] differentiates over Wolcott. Furthermore, in [illegible] the water is splashed or dashed upwardly onto the dishes or other articles placed in a wire basket. This claim further distinguishes from Wolcott by reciting the entirely different action set up in the tub, which would be impossible of accomplishment in the Wolcott machine. Claim 47 is patentable.

Each and all of the claims presented herewith are patentable over each and all of the references of record, or set up in the motion to dissolge.

Respectfully submitted,

Wallace R. Lane

LFM/O

Div. 25

TITLE REPORT

No. 568,158

Name Howard F. Snyder

Authority of Lettie Snyder as executrix has been forwarded to record

The title appears from the assignment records to be vested in:
The Maytag Company, Newton, Iowa --

assignment submitted by Lane, attorney

Examined up to and including 1/28/28

This certificate dated 2/85/28

Wells B Magruder
Chief of Assignment Division.

h

No further assignments appear to have been received for record including

Paper No. 1

Filed

Walter E. Duth,
Chicago, Ill.

In re Interference No. 64,318.
Duth vs. Snyder.

The counts hereinafter appearing [illegible] above noted interference, pursuant to the [illegible] December dated Jan. 26, 1928.

The subject matter of the added counts is:

17 ps. A washing machine comprising in combination a container having a substantially [illegible] rotary centripetal [illegible] having upstanding [illegible] forces water in the [illegible] centripetal direction and [illegible] direction, whereby the [illegible] substantially suspended by the water [illegible] while thus suspended, and motor driven [illegible] the bottom of the container to rotatably [illegible] holder.

17 ps. In a washing machine, a [illegible] liquid and goods to be washed, an oscillating [illegible] said tub near the bottom thereof [illegible] upstanding water-impelling projections [illegible] said projections being of [illegible] from the periphery of the agitator [illegible] toward the center whereby [illegible] provided, and while the agitator is [illegible] water will be vigorously moved in [illegible] acting to violently agitate the [illegible] goods and thoroughly [illegible] the water free from any substantial [illegible] resistance, and motor-driven means for oscillating [illegible]

20 ps. In a washing machine, a tub having a [illegible] substantially uninterrupted inner surface and adapted to [illegible] liquid and materials to be washed, [illegible] extending smoothly into the sides, an oscillating [illegible] adjacent the bottom of the tub, [illegible] wave generating ring-like series of substantially [illegible] constructed and arranged that when the [illegible] rotary oscillatory movement the [illegible] materials to be washed will be violently [illegible] [illegible] thereof generally along the [illegible] and back toward the [illegible] suspended to force the [illegible]

around the materials to be washed to thoroughly cleanse them while they are substantially out of rubbing contact with the impeller, and motor-driven means for imparting to said impeller a rapid rotary oscillatory movement.

The relation of the added counts to the claims of the respective parties is as follows:

Counts	Unruh	Snyder
18	38	39
19	39	44
20	40	47

A statement such as is required by Rule 110, as to the added counts, must be sealed up and filed on or before APR 23 1928, with the subject matter of the invention and the name of the party filing it endorsed on the envelope.

jcm

J. H. Graham
Examiner.

INTERFERENCE

Interference No. ..... *Paper No.* 24

Name, Howard F. Snyder

Serial No. 568,158

Title, Washing Machines

Filed, June 14, 1922

Interference with. Cornelius C. Unruh - Alpheus W. Alterfer.

DECISIONS OF

Law Examiner, ... *Dated,* .....

Ex'r of Interferences, ... *Dated,* .....

Board, ... *Dated,* .....

Commissioner, ... *Dated,* .....

REMARKS:

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

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134

#54,3[illegible]

25 K.
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1.3

APPEAL DIV. JAN 28 1932 U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

In re Application of
Howard F. Snyder,
Serial No. 568,158, WASHING MACHINES
Filed June 14, 1922,
Div. 25, Room 314.

AMENDMENT

Hon. Commissioner of Patents,
Present.

Sir:

Amendment is hereby made as follows:-

Page 1, line 9, (two occurrences) after "gyretator" insert ---or impeller---.

Page 1, line 13, after "kinds" change the comma (,) to a period (.).

Page 1, line 14, cancel "which" and substitute ---My invention---.

Page 2, line 2, cancel "in the least".

Page 2, line 9, cancel beginning with "In washing machines it has been" through and including "tearing or tangling of the clothes." in line 14.

Page 2, line 15, immediately before "gyretator" (first occurrence) insert ---the---.

Page 2, line 20, cancel "as to" and substitute ---or---.

Page 2, line 25, before "inclined" insert ---en---; same line, cancel "side or"; line 26, singularize "portions".

Page 3, line 5, after "radially" insert ---outward--- to restore this word as it appeared in the original specification.

[illegible]

Page 3, line 6, cancel "outwardly" and insert ---upwardly--- to restore this word as it appeared in the original specification.

Page 3, line 9, after "tub," insert ---first in one direction and then in an opposite direction---.

Page 3, line 12, cancel "reach substantially every point" and substitute ---are driven about---.

Page 3, line 12, cancel "by" and substitute ---in---.

Page 3, line 14, after "tub" cancel the comma (,).

Page 3, line 15, cancel "also"; same line, cancel "and also"; same line, after "paths" cancel comma (,); same line, after "materials" insert a comma (,).

Page 3, line 17 after "mechanism" change the comma to a period; same line, cancel "which" and insert ---This mechanism---.

Page 3, line 19 immediately before "resilient" cancel "provide".

Page 3, line 20, cancel "yielding" and insert ---yieldable---.

Page 3, line 22, after "interference" insert ---of the operator---.

Page 4, line 12, after "agitation" insert a comma (,).

Page 5, line 8, after "of" (first occurrence) insert ---the removable plate at---.

Page 5, line 16, cancel "8".

Page 6, line 3, pluralize "pulley".

Page 6, line 4, cancel "In this way" and insert ---By this means---.

Page 6, line 8, cancel "for such a shaft".

Page 6, line 23, after "25" insert a comma (,).

Page 6, line 24, after "respectively" insert a comma (,).

Page 6, line 24, after "29" change the comma (,) to a period (.).

Page 6, line 25, cancel "the former of which" and insert ---Said housing 28---.

Page 6, line 26, cancel "forming" and insert ---includes---.

Page 7, line 1, after "16" change the comma (,) to a period (.).

Page 7, line 1, cancel commencing "and the latter" and ending "which" line 2 and insert --- The housing 29---.

Page 7, line 4, cancel "35" and insert ---35'---.

Page 7, line 10, cancel "have" and insert ---be---.

Page 7, line 13, after "by" insert ---s---.

Page 7, line 13, cancel "pins" and insert ---pin---.

Page 7, line 15, cancel commencing "are" and ending "they" line 16.

Page 7, line 16, after the comma (,) following "invention" insert ---and therefore,---.

Page 7, line 3 from the bottom, in the amendatory matter inserted by the amendment dated Chicago, July 19, 1924, line 6 of said amendatory insertion, cancel "dolly or", and change "agitator" to ---impeller---, and in line 2 of said amendatory matter after "gyrator" insert ---or impeller---. In line 7 of said amendatory matter cancel "with a cor-", and in line 8, cancel "responding rearrangement of surrounding inclined tub wall and", and substitute ---thereby bringing about---.

In the amendatory matter inserted at page 8, line 4, by the amendment dated Chicago, July 19, 1924, line 5 of the first page of said last mentioned amendatory matter cancel "upwards" and insert ---upwardly---, and in line 1, cancel "of sheet" and preferably aluminum" and before "and" insert ---or other suitable material---.

Page 2, of said amendatory matter (inserted at line 4, page 8), line 9, cancel "dished," and in line 10, cancel "across the central or trough-like portion".

Page 2 of said amendatory matter (inserted at line 4, page 8), line 14 of said page 2, change "half" to ---part---.

Page 2, of said amendatory matter (inserted at line 4, page 8), line 31, cancel "to" and substitute ---toward---, and in same line cancel "very".

Page 9, of the specification, line 15, cancel "the" (second occurrence).

Page 9, line 6, cancel "holding" and insert ---hold---.

Page 9, line 15, cancel "arm" and insert ---arms---.

Page 9, bottom line, change "Fig." to ---Figs.---.

Page 10, line 14, cancel "78" and substitute ---76---; line 17, cancel "or angularly oscillate, and hence" and substitute ---and through the medium of shaft 52 impart such movement to---.

Page 10, line 20, cancel "88" and substitute ---89---; line 24, cancel "92" and substitute ---52---; same line, singularize "bearings."

Page 11, line 3, cancel "99" and insert ---100---.

Page 11, line 13, cancel "hinged."

Page 11, line 20, cancel "constructed to drew" and substitute ---into the upper portion of which---; same line, cancel "from" and substitute ---is drawn by---.

Page 11, line 21, cancel "and" (first occurrence) and substitute ---on---; same line, cancel "a discharge of the charge,".

Page 11, line 22, before "into" insert ---discharged---.

Page 11, line 24, before "direction" insert ---general---.

Page 12, line 2, after "oscillated" insert a comma (,) and cancel the following word "and" (first occurrence); same line, cancel "a mass of" and pluralize ---material---.

Page 12, line 3, cancel "mass" and substitute ---liquid---; same line, change "fluid" to ---liquid---.

Page 12, lines 4, 5 and 6, cancel beginning in line 4 with "movement, then an upward" to and including "wall 48, then an" in line 6; line 6, before "upward" insert ---an---.

Page 12, line 7 cancel "in the".

Page 12, line 8, cancel "center of the tub"; same line, cancel "mass" and substitute ---liquid---.

Page 12, line 9, after "tub" insert ---first in one direction and then in an opposite direction---.

Page 12, line 10, pluralize "motion" and substitute ---are--- for "is"; same line, cancel "a" (two occurrences) and change "one" to ---ones---.

Page 12, line 11, pluralize "movement".

Page 12, line 13, before "At" insert ---While it is very difficult to describe the action of the water and the movement of the clothes therein produced by the rapid reciprocation of the gyrator or impeller in the container, whereby the materials are thoroughly cleansed while held in suspension by the peculiar and novel movement and action of the water, I believe that the foregoing description will easily enable anyone skilled in the art to readily construct and operate my invention and fully utilize the herein disclosed method.---.

Claim 1, line 9 after "plane" (first occurrence) insert ---approximately---.

Claim 1, last line cancel "material" and insert ---substantial---.

Cancel claims 2, 3, 6, 33, 34, 37, 40, 41, 42, 43, 45 and 46.

Claim 5, lines 3 and 4 after "impeller" cancel the comma (,).

Claim 5, line 4 cancel "through" and insert ---adjacent---.

Claim 11, line 4 cancel "an" inserted by amendment.

Claim 11, line 5 (first occurrence) change "flange" to ---flanges---.

Claim 11, line 5 cancel "said flange" and insert ---each of said flanges---.

Claim 24, line 1 cancel "A dolly" and insert ---an impeller---.

Claim 27, line 1 cancel "dolly" and insert ---impeller---.

Claim 36, line 13, cancel "s".

Claim 36, line 14 pluralize "movement".

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Claim 36, next to the last line cancel "to" and insert ---toward---.

(Attention is called to claims 39, 44 and 47 which were added by amendment accompanying Motion under Rule 109 dated June 11, 1927 and allowed by Law Examiner and that these allowed claims are now in the case).

Add the following claims:-

48. A washing machine comprising in combination a tub for containing cleansing liquid and materials to be cleansed, said tub having a bottom portion, and an upwardly extending wall portion the interior surface of which is free from rubbing projections, the juncture of the bottom portion with the upwardly extending portion being inclined to facilitate the movement of currents outwardly and upwardly in the tub, a rotary reciprocatory impeller mounted in the tub adjacent its bottom, having an imperforate base, the upper surface area of which is considerably less than the horizontal cross-sectional area of the tub through its upwardly extending portion, the margin of said base being spaced a substantial distance away from the upwardly extending portion of the tub, a rotary reciprocatory drive shaft extending upwardly through the bottom of the tub into the interior thereof, the impeller being mounted upon said shaft for movement therewith in a fixed plane, said impeller having a plurality of blades each of which is of substantial height to provide lateral impelling faces of substantial area, a central portion projecting upwardly from said base, means for imparting a rotary reciprocatory motion to said shaft and the impeller mounted thereon, the impeller and tub being so constructed and arranged as to cooperate while the impeller is reciprocated to cause the washing fluid to be violently agitated and vigorously moved about the tub, and the washable materials driven about the tub in devious paths by the action of the liquid.

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49. A washing machine comprising in combination a tub for containing cleansing liquid and materials to be cleansed, said tub having a bottom portion, and an upwardly extending wall portion the interior surface of which is free from rubbing projections, a rotary reciprocatory impeller mounted in the tub adjacent its bottom, having an imperforate base, the upper surface area of which is considerably less than the horizontal cross-sectional area of the tub through its upwardly extending portion, the margin of said base being spaced a substantial distance away from the upwardly extending portion of the tub, a rotary reciprocatory drive shaft extending upwardly through the bottom of the tub into the interior thereof, the impeller being mounted upon said shaft for movement therewith in a fixed plane, said impeller having a plurality of blades each of which is of substantial height to provide lateral impelling faces of substantial area, a central portion projecting upwardly from said base, means for imparting a rotary reciprocatory motion to said shaft and the impeller mounted thereon, the impeller and tub being so constructed and arranged as to cooperate while the impeller is reciprocated to cause the washing fluid to be violently agitated and vigorously moved about the tub, and the washable materials driven about the tub in devious paths by the action of the liquid.

44 50. In a washing machine, a tub adapted to contain a washing fluid and materials to be cleansed, a rotatively reciprocatory driving shaft extending through the bottom of the tub at the center thereof, a liquid impeller mounted on said shaft near the bottom of the tub, the outer portion of

the impeller being spaced a considerable distance from the interior side surface of the tub and rotatively reciprocatory with the shaft, said impeller comprising a base, a central portion projecting upwardly therefrom and a plurality of uniform blades projecting upwardly from the base and equally spaced and extended radially from the central portion, each blade being of greater area at a position contiguous to the edge of the base than at the center thereof, and means for imparting rotary reciprocatory motion to said shaft and the impeller mounted thereon, the impeller and the tub being so constructed and relatively positioned as to cooperate while the impeller is reciprocated to cause the liquid to be violently forced laterally and upwardly against and in one direction, circumferentially around the inner surface of the tub, and laterally and upwardly against and in an opposite direction, circumferentially around the inner surface of the tub whereby the materials will be thoroughly cleansed while substantially suspended in the water. Add L3 Cl. 25

51. A washing machine comprising in combination a tub, said tub having a main body portion the interior of which is free of rubbing projections, and a bottom portion, a rotary reciprocatory liquid impeller mounted for operation in a fixed plane near the bottom portion of the tub, the outer portion of which is spaced a considerable distance from the body portion of the tub, a plurality of blades projecting upwardly from the base, a driving shaft extending through the bottom of the tub on which the impeller is mounted for movement therewith, means for imparting to the shaft and impeller rapid rotary

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reciprocatory motion, the impeller and tub being so constructed and relatively positioned as to cooperate while the impeller is reciprocated to cause the washing fluid to be vigorously agitated and rigorously moved about the tub, and the washable material driven about the tub in devious paths by the action of the washing fluid, substantially as described and for the purpose set forth.

52. A washing machine comprising in combination a tub, said tub having a main body portion and a bottom portion inclined outwardly and upwardly toward the body portion, a rotary reciprocatory liquid impeller mounted for operation in a fixed plane near the center of the bottom portion of the tub, the outer portion of which is spaced a considerable distance from the body portion of the tub, said impeller having a base portion and a plurality of blades projecting upwardly from the base, a driving shaft extending through the bottom of the tub on which the impeller is mounted for movement therewith, means for imparting to the shaft and impeller rapid rotary reciprocatory motion, the impeller and tub being so constructed and relatively positioned as to cooperate while the impeller is reciprocated to cause the washing fluid to be vigorously agitated and rigorously moved about the tub, and the washable material driven about the tub in devious paths by the action of the washing fluid, substantially as described and for the purpose set forth.

53. A washing machine comprising in combination a tub having an interior surface free from rubbing projections, and a bottom portion merging therewith, an impeller to rotary reciprocatory impeller mounted for operation in a fixed plane

near the bottom of the tub, the outer portion of which is spaced a considerable distance from the interior surface of the tub, said impeller comprising a base of substantial area, a plurality of radially disposed blades, equally spaced on the base and projecting upwardly therefrom, each blade being of substantial height and lateral area, a central portion projecting upwardly from the base, a driving shaft extending through the bottom of the tub on which the impeller is mounted for movement therewith, and means mounted beneath the tub for imparting to the shaft and impeller a rapid rotary reciprocatory motion, substantially as and for the purpose set forth.

27 ~~24~~. A washing machine comprising in combination, a tub having an inner surface free from rubbing projections, said tub having a vertical portion and a bottom portion inclined outwardly and upwardly toward and merging with the vertical portion, an imperforate rotary reciprocatory impeller mounted for operation in a fixed plane near the bottom of the tub, the outer portion of which is spaced a considerable distance from the interior of the vertical portion of the tub, said impeller comprising a base of substantial area, a plurality of uniform radially disposed and equally spaced blades projecting upwardly at substantially right angles from the base, each blade being of substantial height and lateral area, and a central portion projecting upwardly from the base, a driving shaft extending through the bottom of the tub on which the impeller is mounted for movement therewith, and means mounted beneath the tub for imparting to the shaft and impeller a rapid rotary reciprocatory motion.

28 86. In a washing machine, a tub having a substantially smooth inner surface free from rubbing projections, adapted to contain cleansing liquid and materials to be cleansed, said tub having a vertical portion and a portion inclined downwardly and inwardly from the vertical portion and merging therewith, an imperforate rotary reciprocatory impeller mounted near the bottom of the tub, the outer portion of which is spaced a considerable distance from the interior of the vertical portion of the tub, comprising a base of substantial area and a plurality of uniform equally spaced radially disposed blades projecting upwardly from the base, each blade being of substantial height and lateral area at its outer end and decreasing in its lateral area toward its inner end, and a central portion projecting upwardly from the base into which the inner end of each of said blades merges, a driving shaft extending through the bottom of the tub on which the impeller is mounted for movement therewith, and means mounted beneath the tub for imparting to said shaft and impeller a rapid rotary reciprocatory motion.

29 86. In a washing machine, a tub adapted to contain cleansing liquid and materials to be cleansed, a rotary reciprocatory impeller mounted adjacent the bottom of the tub, comprising a substantially imperforate base of substantial area and blades of substantial height and lateral area projecting from the body of the impeller toward the materials while being washed, said impeller and tub being so constructed and arranged that they will cooperate, when the impeller is rapidly reciprocated, to cause the liquid to be positively forced outwardly, upwardly and circumferentially along the interior of the tub in one general direction, and then outwardly, upwardly and circumferentially along the tub in the opposite general direction, whereby the materials being washed will be cleansed, the change in di-

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of movement of the impeller being accomplished suddenly and forcibly to whip the liquid and vigorously force it first in one direction and then in the opposite direction through and around the materials while substantially suspended therein by the action of the liquid, and power means for rapidly reciprocating the impeller.

30 81. In a washing machine, a tub having its bottom merging smoothly into its side portion to facilitate the movement of laterally upward circulatory currents, and having the interior of its side portion substantially smooth and free from rubbing elements, for containing a cleansing fluid and materials to be cleansed, a rotary reciprocatory impeller mounted near the bottom of the tub, said tub and impeller being so constructed and arranged as to act in cooperation while the impeller is in operation, for whipping the fluid and violently forcing it first in one and then in an opposite laterally upward circulatory general direction against the interior of the tub and through and around the materials, and suspending the materials in the fluid by the moving fluid while being washed, said impeller comprising a substantially imperforate base and blades of substantial height and area projecting upwardly therefrom, and motor driven means extending through the bottom of the tub for imparting to the impeller a rapid rotary reciprocatory motion, substantially as described.

31 86. In a washing machine, a tub having a substantially smooth interior free from rubbing elements for containing a cleansing fluid and materials to be cleansed, a rotary reciprocatory impeller, mounted near the bottom of the tub,

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said tub and impeller being so constructed and arranged as to cooperate while the impeller is operated for violently forcing the fluid first in one and then in an opposite outwardly and upwardly circulatory general direction against the interior of the tub and through and around the materials, and substantially suspending the materials in the fluid while being washed, said impeller comprising a substantially imperforate base and blades of substantial height and area projecting upwardly therefrom, and motor driven means extending through the bottom of the tub for imparting to the impeller a rapid rotary reciprocatory motion.

89. In a washing machine for cleansing fabrics by forcing cleansing fluids through them while substantially suspended by the action of the fluids as distinguished from pulling or pushing fabrics through fluids or against scrubbing surfaces or otherwise scrubbing them by mechanical means, a tub, a rotary reciprocatory impeller, said tub and impeller being so constructed and arranged to cooperate while the impeller is in operation for whipping the fluid and violently forcing it first in one and then in an opposite outward, axial and circulatory general direction against and approximately parallel to the interior of the tub and through and around the materials and substantially suspending the materials in the fluid while being washed, said impeller comprising an imperforate base and blades of substantial height and area projecting therefrom in a direction toward the materials being cleansed, and power means for rapidly reciprocating the impeller.

90. In a washing machine, a tub substantially free from scrubbing projections for containing a cleansing fluid and materials to be cleansed, a rotary reciprocatory impeller

mounted near the bottom of the tub, said impeller comprising an imperforate base and blades of substantial height and area projecting upwardly therefrom, said tub and impeller being so constructed and arranged as to set in cooperation while the impeller is operated for whipping the fluid and violently forcing it first in one and then in an opposite outwardly upwardly circulatory general direction, against the interior of the tub and toward and through the materials, and substantially suspending the materials in the fluid while being washed, and power means for rapidly reciprocating the impeller.

Par 2 62. In a washing machine, a tub adapted to contain a cleansing fluid and materials to be cleansed, a driving shaft extending into the tub through the bottom thereof, an impeller on said shaft to oscillate therewith, power means for oscillating said shaft and impeller, the impeller comprising an imperforate body portion, and blades extending from said body portion on the face presented to the materials being cleansed, the blades being of a substantial dimension in a direction at right angles to the body portion, said blades and adjacent portions of the body portion of the impeller being so constructed and arranged in the tub relative to its interior that when the impeller is oscillated the fluid in the tub will be thrown violently outward against and around the interior of the tub, from the edge of the impeller, first in one and then in the opposite general direction, whereby the fluid will be driven in circulatory paths away from the impeller, along the sides of the tub in opposed directions, then inwardly and toward the impeller, this cycle being continuously repeated, while the materials are substantially suspended by the fluid and out of substantial scrubbing contact with the impeller or tub.

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62. In a washing machine comprising in combination a tub for containing water and goods to be washed, a rotary reciprocatory impeller in the tub, having flange-like means extending therefrom of substantial height in a direction at right angles to the body of said impeller and elongated to provide faces of considerable area for action against the water when the impeller is reciprocated, the impeller and the tub being so constructed, proportioned and arranged that the water is forced violently outward from the impeller and against and in opposed directions along the interior surface of the tub in gyratory paths, so that the goods to be washed will be suspended in the circulating water and out of substantial contact with the impeller, and motor driven means for reciprocating the impeller, substantially as described.

63. In a washing machine, a tub free of scrubbing elements for containing a cleansing fluid and materials to be cleansed, an imperforate rotary reciprocatory impeller, blades on the impeller, said tub and impeller together with its blades being so constructed and arranged with respect to each other that while the impeller is in operation the fluid will be rigorously moved about in devious paths within the tub, and the resultant general direction of the movement of the cleansing fluid is normally radially outward from the central portion of the tub, then vertically and in a general rotary progression about the inside of the tub, first in one and then in an opposite direction, and then inwardly toward the impeller, whereby the fabrics will be cleansed while substantially sustained by the action of the fluid and will be freely and continuously driven about in the fluid by the movements of the fluid in a turbulent manner and in devious paths, and power means for imparting reciprocating [illegible] impeller.

37 cc. In a washing machine, a tub for containing fluid and materials to be cleansed, a rotary reciprocatory impeller mounted for oscillation on substantially fixed plane having a substantially imperforate base and a plurality of blades, said tub and impeller being so constructed and positioned relative to each other that when the impeller is rapidly reciprocated each blade and its adjacent portion of the impeller base will simultaneously drive the cleansing fluid in one and then an opposite outward, upward, circulatory direction and act in cooperation with the interior of the tub to cause violently opposed currents of fluid to meet and flow inwardly and downwardly toward the central portion of the tub and substantially suspend the materials in the fluid while being washed, and power means for rapidly reciprocating the impeller. Add [37 cl. 38]

Insert the following claim so as to come immediately after claim 1:-

65. The method of washing fabrics, by forcing cleansing fluid through them while substantially suspended by the action of the fluid, as distinguished from pulling fabrics through the fluid against scrubbing corrugations or otherwise scrubbing them by mechanical means, comprising immersing the fabrics in a washing fluid in a container, then substantially suspending the fabrics in the fluid, and cleansing them while thus suspended, by vigorously agitating the washing fluid and rapidly forcing it against and around the interior of the container first in one and then in an opposite direction and back and forth through and around the fabrics and by so impelling the liquid as to cause gyratory movements of the liquid in one direction, and then cause gyratory movements of the liquid in an opposite direction, in rapid succession.

REMARKS

Previous to the Snyder invention disclosed in the present application, there were four distinct types of washing machines which had been generally made and sold for years. They were:-

1. The dolly round-tub wooden-stave machines in which the clothes were gripped by a peg-leg dolly and drawn through the water against the corrugated interior of the tub, for scrubbing the clothes. Usually the machines were operated by a crank wheel or lever, the operation of which brought about the rotary reciprocatory movement of the dolly, for the purpose of pulling the clothes through the water, and scrubbing them back and forth against the corrugated sides of the tub.

2. The cylinder type metal machines in which a perforated cylinder was rotatably mounted on a horizontal axis inside of a tub; this cylinder had rubbing projections extending longitudinally of its interior. Clothes were placed in the cylinder and as the cylinder was rotated by an engine or motor, the clothes were tumbled about, and rubbed and scrubbed over the projections on the interior of the perforated cylinder.

3. The oscillatory type, round or semi-cylindrical metal or wooden-stave tub machines. These machines had corrugated inner surfaces, and as the tub was oscillated back and forth the clothes were forced against and scrubbed by the corrugations on the interior of the tub. All of these three types of machines simply carried out the scrubbing action theretofore prevalent, very much as the wash woman scrubbed her clothes on the old fashioned scrubbing board, except that the work was done on the interior of the tub.

4. The vacuum-cup type round wooden or metal tub machines. In these machines a number of cups were attached to a plunger which extended through the top of the machine. The plunger and cups were driven up and down in the tub, and at the same time moved circularly around the tub so as to press the clothes down and scrub them, and to soak water through them upon the engagement of the vacuum cups. In all of these machines the principle carried forward the theretofore used principle of washing clothes by scrubbing them or rubbing them in one manner or another by mechanical means of some character.

The applicant Snyder connected with the Maytag Company, owner of the Snyder application, was thoroughly familiar with all of these types of machines as was nearly everyone else in the public. As a result of years of observation and experimentation Snyder devised and made the invention of his present application. It embodies a radically new principle of construction and operation. In it clothes are washed by rapidly driving currents of water, first, in one and then in an opposed direction, with such rapidity that the clothes are substantially suspended in the water while being washed, and are driven about by the currents of water in a turbulent manner and in devious paths. Putting it tersely, Snyder for the first time washed the clothes while suspended in the washing fluid by the action of the fluid on the clothes, as distinguished from rubbing and scrubbing the clothes with mechanical means. Snyder's invention is revolutionary and was immediately and extensively adopted by the trade. In fact, it became so widely used as to be recognized by Unruh,

the party with whom Snyder has successfully contested an interference proceeding in the Office, as "the well known Maytag Washing Machine". This was as early as January 23, 1923 when Unruh filed his application for patent.

The Maytag machines made under the Snyder application were on the market as early as the Spring of [illegible] have been continuously made and sold since. Nearly a million of such machines are in use at the present [illegible] The machines have been so widely known and so [illegible] in character as to have become recognized as an [illegible] novel type of machine, and is now known as the [illegible] or agitation-type, which refers to the action that takes place in washing the clothes by the movement of the [illegible] as distinguished from the movement of the clothes by other means than the water and against scrubbing parts. Applicant is prepared to show by affidavit the foregoing facts, or any as necessary to supplement the record now on file in the Patent Office in the interference proceeding and in the file wrapper.

Ever since filing the present application Snyder's assignee (The Maytag Company) has been consistently attempting to secure claims which would adequately protect his novel construction and method of operation. This attempt was interrupted by the interference proceeding with Unruh, which has delayed prosecution and the securing of protection, for a period of more than five years, the interference having been declared October 1, 1926. The present application is the parent one and it is only in this application that claims may be secured which afford protection for this radically new construction and method of washing. In view of these

circumstances and of the long delay incident to the interference proceedings, the owner of the Snyder application is anxious to have the patent brought to speedy issue.

Claims 2, 3, 6, 33, 34, 37, 40, 41, 42, 43, 45 and 46 have been cancelled for the reason that other allowable claims already in the case, and presented by this amendment more adequately cover applicant's invention.

The new claims filed herewith are presented as the result of an understanding reached with the Examiner during a recent personal interview. They have been carefully drawn to bring them into conformity with the suggestions made by the different tribunals of the Patent Office, after consideration of all of the references of record, including those cited in the motions to dissolve, as well as those cited by the Examiner. The many suggestions made by the Examiner during the interview have also been very helpful to applicant in drafting these claims.

In view of the Law Examiner's full discussion of the prior art and its bearing upon applicant's invention, it is believed to be unnecessary to discuss the references specifically and to point out wherein the claims are patentable over them. This is particularly true in view of the fact that the claims are clearly drawn in form and substance to include those characteristics which the Law Examiner has approved and pointed out as distinguishing from the prior art.

For instance, in considering and disposing of the motions to dissolve filed during the recently terminated interference, in his discussion of count 3 (claim 5) appearing on page 228 of the printed transcript of record filed with the U. S. Court of Customs and Patent Appeals, a copy of which is in the Examiner's possession, the Law Examiner stated that said patent was not anticipated by the Coffield patent because the reference "does not disclose 'a rotary reciprocatory disk-like impeller - so constructed and arranged' that the specified gyratory motions of the water may be attained. This count does not impute the movement of the water solely to the driving of the impeller, but indicates that the impeller is formed in such a way that, upon reciprocation in the inside of the smooth container, it will cause the water to move as recited".

On page 232 of the record, in connection with the discussion of the term "constructed and arranged" the Law Examiner said:-

> "Count 3 clearly recites the container and the impeller and specifies that these elements are 'so constructed and arranged' as to produce the particular motions of water specified in the count. It also recites the motor driven means for rapidly driving the impeller. The form of this count is analogous to the type of claim approved in Young vs. Rick, 113 O.G. 547, in which the use of the word 'means' limited by a statement of function is recognized as a proper method of stating an element of a combination claim. But in the machines disclosed in the pending applications the elements for performing the functions specified in the count are not a separate means but, on the contrary the said function is performed because of the specific construction and arrangement of

two elements, namely the container and the impeller. Therefore, count 3, if revised to substitute 'means' for 'so' would not be readable on the disclosure since no separate means is provided for performing the functions referred to. It is accurate in its present form and is no more functional than the claim approved in the last cited decision."

Again on page 237 of the printed transcript of record the Law Examiner, after discussing a series of references, including the French patent to Henin and the British patent to Jardine, held as follows:-

"The patents held to anticipate count 2 do not anticipate count 3 for the reason that they do not disclose or suggest an 'impeller' - so constructed and arranged that when water and materials to be cleaned are placed in the container and the impeller is reciprocated the water will first be violently forced laterally and upwardly in one gyratory direction and then laterally and upwardly in an opposed gyratory direction."

Again on page 238 after discussing prior art patents including the patent to Snyder No. 1,391,214, the Law Examiner pointed out that the references "do not disclose 'an impeller cooperating with the said inclined portion of the tub to force said cleansing substance and materials to be cleansed outwardly in a direction substantially parallel with said inclined portion' and do not anticipate count 5. The patents to Welsh No. 1,457,240, Walker No. 1,244,446, Conover, No. 1,365,382, Alexander No. 51,000, and Wolcott 1,390,224 do not disclose the cooperation of elements defined in the phrase quoted in the last sentence and do not anticipate count 5. In each case, the materials to be cleaned are apparently retained in a basket and are not forced in the direction of the inclined portion of the container."

Again on page 239 the Law Examiner said:-

> "The combination of the Snyder patent with any one of the numerous other patents cited against these counts to anticipate the latter is not obvious nor is it clear that the elements would cooperate to secure the motions of the cleaning substance and materials specified in these counts."

On page 239, attention is particularly invited to the following discussion of the references by the Law Examiner, to wit:-

> "The patents to Alexander No. 51,000, Wolcott 1,390,224, Walker 1,244,446, Welsh 1,457,240, and Conover 1,365,382, do not anticipate count 11. The dish racks and baskets are designed to prevent movement of the goods to be washed."

On page 240, after discussing various other prior art patents, including the patents to Walker and Conover the Law Examiner stated as follows:-

> "The patent to Snyder No. 1,391,214, does not anticipate count 12 since it does not disclose a 'liquid impeller having a centrally raised portion and radially depressed portion, and operable to swirl said materials with a substantially gyratory movement'. The movement of the materials is not gyratory as clearly described on page 1, lines 72 to 81".

In addition to the foregoing, with respect to particular references, the Law Examiner on page 235 points out that the Conover patent No. 1,365,382 does not disclose a method of cleansing fabrics. On the same page that the patent to Walker 1,244,446 does not disclose a method of cleansing fabrics. See also the discussion on page 243 relative to the two patents to Mears.

As pointed out by the Law Examiner, in the portions of the record above quoted, applicant's invention differs from the various references cited and the claims as now presented bring out the patentable differences in the form indicated by the Law Examiner. The new claims are therefore patentable in substance.

As to the form of the new claims, it is submitted that there is ample authority for the granting of claims in which structure is fully stated and qualified by functional statements. Statements of functional character have been repeatedly approved by the courts as shown by the following authorities:-

In the case of Eibel Process Company v. Minnesota & Ontario Paper Company, 261 U. S. 45, the Supreme Court had before it the Eibel patent No. 845,224,

> "for an improvement on Fourdrinier paper-making machines, whereby, mainly through a substantial elevation of the breast-roll end of the moving screen or 'paper-making wire', the liquid stock discharged upon the screen acquires through gravity an additional speed, enabling it to keep pace with the screen at the critical paper-forming point, thus avoiding injurious disturbances of the stock when the screen moves very rapidly, and making possible a much speedier production of good paper than was theretofore obtained from the machines without the improvement."

This process was held by the Supreme Court, through the opinion of Chief Justice Taft, to be a new and useful invention.

Among the six claims asserted and considered by the court was claim 12, which reads as follows: (p. 70)

"12. In a Fourdrinier machine, [illegible]-moving paper-making wire, the inclination and speed of which are so regulated that the velocity of the stock down the [illegible] wire, caused by gravity, is so related to the velocity of the wire in the same direction, that waves and [illegible] on the stock [illegible] and are kept [illegible] velocity on the wire, substantially as described.

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In considering this claim and in holding it valid, Chief Justice Taft says: (p. 71)

"This cannot succeed by being a process claim but whether it is or not the defendant infringes it."

In this Eibel Co. v. Paper Co. case the only element positively included was a downwardly-moving paper-making wire in a Fourdrinier machine. All of the rest of the claim related to the regulation of the declination and speed of this paper-making wire, by which the waves and ripples on the stock are substantially avoided and the fibers deposited with substantial uniformity on the wire.

Certainly, if the various claims of the Eibel patent sustained by the Supreme Court in this case are proper and valid claims, there cannot be the slightest doubt about the propriety of all of the expressions in each of the claims of the Snyder application.

In Hildreth v. Mastoras, 257 U. S. 27, the Dickinson patent for a candy-pulling machine was involved. Chief Justice Taft writing the opinion of the court and sustaining Dickinson's claim again approved claims containing just such statements as are in the Snyder claims. The claim in Hildreth v. Mastoras reads: (p. 32)

"A candy-pulling machine comprising a plurality of oppositely-disposed candy hooks or supports, a candy-puller, and means for producing a specified relative in-and-out motion of these parts for the purpose set forth."

The underlined portion of this claim certainly contains a statement of the results accomplished, purposes to be served, or function, quite as much as the claims in the Snyder application.

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The Supreme Court held the machine patented as embodying - (p. 34)

> "the generic principle, and works, * * * and mechanically performs, though only in a crude way, the important function by which it makes the substantial change claimed for it in the art,"

and that it was, therefore, a pioneer. Citing Telephone Cases, 126 U. S. 1, 535; Mergenthaler Linotype Co. v. Press Publishing Co., 57 Fed. 502,505.

In Abercrombie & Fitch Company, et al. v. Baldwin, et al., 245 U. S. 198, the Baldwin Reissue Patent No. 13,542, was before the Court. The court states the purposes and functions of the patent -

> "The patent relates to an acetylene gas generating lamp, with an upper reservoir for water and a lower receptacle for calcium carbide, connected by a tube, with a rod extending through the tube and subject to manipulation from above. The inventive features involved lie in securing a proper flow of the water through the tube and access for it to the unslaked carbide, the first, by adopting a comparatively large tube with a size of rod suitably restricting its capacity; the second, by manipulating the rod when necessary to break up slaked carbide at the mouth of the tube in the lower receptacle,"

and specifically referring to two of the claims holds them valid and infringed, notwithstanding the fact that each of these claims defines the functional purpose of the rod as "operating to restrict and thus control the flow of water to the carbide."

Claim 4 reads as follows:

> "4. In a lamp of the kind described, the combination with a water-reservoir, and a receptacle for calcium carbid, of a water-tube extending from the former a considerable distance into the latter and adapted to be embedded in the mass of carbid in the receptacle, and a rod extending through the water-tube, and constituting a stirrer to break up slaked carbid around the outlet of the water tube, the rod operating to restrict and thus control the flow of water to the carbid, as set forth."

The underlined portion was italicised in the Supreme Court opinion.

The court held that the controversy mainly centered

> "in the water-feeding duct or tube and its restriction by means of a wire or rod and the shape and use of the rod to pierce or stir the carbide."

An examination of the other claims shows similar statements.

The statements in the Snyder application are quite as valuable for the protection of the invention and public as are the claims in any of the patents passed upon by the Supreme Court in the above cases.

In Continental Paper Bag Company v. Eastern Paper Bag Company, 210 U. S. 405, the Supreme Court had occasion to pass upon Section 4888, and in doing so holds: (p. 405).

> "Under Sec. 4888, Rev. Stat., the claims measure the invention, and while the inventor must describe the best mode of applying the principle of his invention the description does not necessarily measure the invention."

The patent before the court was the patent to Liddell, No. 558,969, for an improvement in paper bag machines for making what are designated in the trade as self-opening square bags.

The court says - (p. 406)

> "The claims in suit do not include mechanism for making a complete bag, but only mechanism for distending one end of a tucked or bellows folded paper tube made by other mechanism, and folding it down into a form known in the art as the 'diamond fold.' This fold is flattened and pasted by other mechanism and forms a square bottom to the bag."

The Supreme Court in sustaining the patents set out fully the claims before it, one of which is sufficient for the purpose of illustration. Claim 1 reads as follows:

"In a paper bag machine, the combination of a rotating cylinder provided with one or more pairs of side forming fingers adapted to be moved toward or from each other, a forming plate also provided with side forming fingers adapted to be moved toward or from each other, means for operating said fingers at definite times during the formative action upon the bag tube, [illegible] for the forming plate adapted to cause the [illegible] to oscillate about its rear edge upon the periphery of the cylinder during the rotary movement of the cylinder, the whole operating for the purpose of gripping and forming the bottom of the bag tube, and means to move the bag tube with the cylinder."

The underlined portions of this claim contain statements showing the purposes to be served by the mechanism employed in making the paper bag. Each of the other two claims in the patent then before the Supreme Court are shown on pages 417, and each of these contain statements showing the purpose to be served by the mechanisms employed.

The court in referring to the trial court's opinion says of the claims and their limitation by the description that - (p. 418)

"Nothing in the manner in which the claims are expressed adopts as the elements the detailed description contained in the specification. So far as the details of the description are concerned, they come within the ordinary rule of preferable method."

The court then says - (p. 418)

"We think it is clear that the court considered that Liddell sought to comply with Sec. 4888 of the Revised Statutes. In other words, he filed a description of his invention, explained its principle and the best mode in which he 'contemplated applying that principle,' and did not intend to give up all other modes of application. An inventor must describe what he conceives to be the best mode, but he is not confined to that. If this were not so most patents would be of little worth. 'The principle of the invention is a unit, and invariably the modes of its embodiment in a concrete invention may be numerous and in appearance very different from each other.'

The court then says: (P. 419)

"This court said in Cincinnati Unhairing Company v. American Fur Refining Company, supra: 'In making his claim the inventor is at liberty to choose his own form of expression, and while the courts may construe the same in view of the specifications and the state of the art, they may not add to or detract from the claim.'"

The court in this opinion in calling attention to the words contained in the claim "Operating means for the forming plate, adapted to cause the said plate to oscillate about its rear edge upon the surface of the cylinder during the rotary movement of said cylinder," and to the criticism made concerning this statement in the claim, approves the method there used and holds it infringed.

The court says: (pp. 421-422)

"Counsel, however, contends that the Circuit Court, in its decision, virtually gave Liddell a patent for a function by holding that he was entitled to every means to cause the forming plate to oscillate about its rear edge.

"The distinction between a practically operative mechanism and its function is said to be difficult to define. Robinson on Patents, Sec. 144, et seq. It becomes more difficult when a definition is attempted of a function of an element of a combination which are the means by which other elements are connected and by which they coact and make complete and efficient the invention. But abstractions need not engage us. The claim is not for a function, but for mechanical means to bring into working relation the folding plate and the cylinder. This relation is the very essence of the invention, and marks the advance upon the prior art. It is the thing that never had been done before, and both the lower courts found that the machines of the Continental Company were infringements of it. It is not possible to say that the findings of those courts on that fact or on the fact of invention were clearly wrong notwithstanding the great ability of the argument submitted against them."

The claims contained in the Liddell patent and approved by the Supreme Court give ample sanction for every claim in the Snyder application.

In Cimiotti Unhairing Company v. American Fur Refining Company, 198 U. S. 399, which the Supreme Court cites in the paper bag case above referred to, the court approves the following claim, which contains statements showing the purposes to be served or the results accomplished, and shows that such statements are not function in the way in which they are sometimes interpreted when functional statements have been held to be objectionable:-

> "8. The combination of a fixed stretcher-bar, means for intermittingly feeding the skin over the same, a stationary card above the stretcher-bar, a rotary separating-brush below the same, and mechanism, substantially as described, whereby the rotary brush is moved upward and forward into a position in front of the stretcher-bar, substantially as set forth." (p. 409).

The court after approving this claim says: (p. 410)

> "In making his claim the inventor is at liberty to choose his own form of expression, and while the courts may construe the same in view of the specifications and the state of the art, they may not add to or detract from the claim."

In Keystone Manufacturing Company v. Adams, 151 U. S. 139, the Supreme Court in sustaining the Adams patent of October 15, 1872, for an improved corn-sheller, again approves functional statements in claims.

The claim there before the court read: (p. 142)

> "The combination with a corn sheller of a series of wings, wheels, or projections, so arranged on a shaft as to revolve in the same direction which the corn is running, and so placed relative to the throat as to force into the machine all misplaced or hesitating ears, substantially as specified.

The approval of this claim by the Supreme Court clearly shows the claims in the Snyder application not to be objectionable as being functionable.

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In Expanded Metal Company v. Bradford, 214 U. S. 366, the single claim of the Golding patent of October 9, 1894, for an expanded sheet metal, read as follows:

> "The herein described method of making open or reticulated metal work, which consists in simultaneously slitting and bending portions of a plate or sheet of metal in such manner as to stretch or elongate the bars connecting the slit portions and body of the sheet or plate, and then similarly slitting and bending in places alternate to the first-mentioned portions, thus producing the finished expanded sheet metal of the same length as that of the original sheet or plate, substantially as described."

The court in approving this claim says: (p. 377)

> "It is thus apparent that the method covered by the claim of the patent is accomplished by the two operations indicated and performed in the manner pointed out in the specifications."

(p. 379)

> "But the patent in suit, embraced in the claim allowed, shows more than a mere method of making open meshes by simultaneously cutting and stretching the metal. It shows a method by which the metal is first cut and stretched in the manner indicated to make the half diamond, and then a second operation, coordinating with the first and completing the mesh by the manner in which it is performed in connection with the first. It is the results of the two operations combined which produces the new and useful result covered by the claim allowed in the Patent Office, and, which, when read in connection with the specifications, shows substantial improvement in the art of making expanded metal work."

The court further says: (p. 381)

> "The important thing in this patent is a method, procedure, not the particular means by which the method shall be practised."

That such claims as are in the instant application are clearly in proper form and have been approved by the courts is clearly evident by this decision.

In Blattner v. Gill, 251 Fed. 81, the Court of Appeals of the Seventh Circuit in sustaining claims to an elastic packing ring and the method of making this packing ring, also shows that such claims as are here made, both as to the method and apparatus, are highly proper.

In American Steel Foundries v. Damascus Brake Beam Co., 267 Fed. 574, the Court of Appeals for the Seventh Circuit in sustaining a patent on forged metal fulcrums for brake beams, and the method of producing them, again substantiates the position of Snyder in making the claims in issue, and shows that they are proper.

Ex parte Holder, 107 O.G. 833, 1903 C.D. 442, see page 443:

> "Where, however, a claim distinctly specifies a certain structure which is adapted to perform a particular function, there is no objection to setting out in the claim also the function which the structure is adapted to perform."

Ex parte Hoge, 173 O.G. 1081, 1911 C.D. 247, see page 247:

> "It is well settled that where a claim distinctly specifies a certain structure which is adapted to perform a particular function there is no objection to setting it out in the claim. (Ex parte Holder, C.D. 1903, 442; 107 O.G. 833)."

Young v. Eick, 113 O.G. 547, 1904 C.D. 465, see page 466:

> "The first reason assigned for the appeal is that the Examiner erred in holding that the fourth count of the interference issue is not functional and indefinite in form. This count contains as one of the elements of a combination--means extending throughout the length of the frame for supporting a series of bottle-holding racks thereon and permitting the discharge of one of the racks at one end as a new rack is secured in place at the opposite end.
>
> "Young contends that this is a statement of functions which are not supported in the claim by the structure upon which they depend. In this contention Young is clearly in error. Means for supporting bottle-holding racks is a structural limitation. The use of the word means limited by a statement of function has long been recognized as a proper method of stating an element of a combination claim. "Ex parte Laskey, C.D. 1889, 181; 48 O.G. 539; ex parte Knudsen, C.D. 1895, 29; 72 O.G. 589; ex parte Halfpenny, C.D. 1895, 91; 73 O.G. 1135; ex parte Weaver, C.D. 1897, 165; 81 O.G. 967)."

Continental Automobile Co. v. A.G. Spalding & Bros., 177 Fed. 693, C.C.N.Y. 1910, Decision by Circuit Judge Lacombe, see pages 696 and 697:

> "If the claims are for means specified and pointed out, and made complete and specific, as to such means, by reference to the specifications which are to be read with the claims, they are not invalidated by a recital therein of the function to be performed by the combination, or by one or more of its elements, or by a recital therein of the result accomplished by the construction pointed out."

See also:

John F. McCanna Co. v. Lavigne Mfg. Co., et al, 177 Fed. 709, affirmed in 194 Fed. 112.

The attitude of the Patent Office with respect to claims of the character now presented, aside from the views expressed by the Law Examiner, are clearly expressed by the Board of Appeals in Ex parte Asbury, 5 U.S. Pat. Q., 120. In this case the following claim, among others was before it on appeal:-

> "In a radio apparatus, a plurality of tuning units a part of each of which is movable, means connecting said movable parts bodily movable to move them collectively, and means included in the first means associated with one of said units bodily movable with the first named means during collective movement of the units and rotatable to move the unit with which it is associated individually."

The Board in sustaining the patentability of the foregoing claim, held as follows:-

> "With a claim in such form it is not necessary to specify all the elements which may be necessary to make up such means to avoid a holding of incompleteness. Nor can a claim positively reciting 'means' for performing a specified function be held functional for that reason."

The Asbury case was recently cited by the Board with approval in the case of Ex parte Whitney, 9 U.S. Pat. Q., 442.

Attention is also invited to In re Spencer, 8 U.S. Pat. Q., 565 as expressing the view of the U. S. Court of Customs and Patent Appeals.

Among the claims on appeal to the Court was the following:-

> "A thermostatic device comprising an initially curved bimetallic strip and means cooperating with the opposite ends thereof, adapted first to resist the tendency of said strip to change its curvature in response to strains within said strip due to temperature changes, and then to aid said strip in assuming its new shape in response to strains induced therein by temperature changes, said strip delineating a simple curve at the beginning and end of its movement, but a compound curve at intermediate portions of its movement."

In holding the above claim to be patentable, the Court made the following comment:-

> "The recitation therein of the combined curvature created in the thermostatic strip, in view of the device disclosed in the specification and drawings, cannot properly be said to be the recital of a function, but rather to be a recital in aid of the related description of the device itself.

In view of the foregoing it is submitted that each and all of the claims now in the case, including those submitted with this amendment, are clearly patentable, and early allowance is accordingly requested.

Very respectfully,

Wallace R. Lane
Attorney

January 26, 1932.

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MAR 19 1932
DIVISION

IN THE UNITED STATES PATENT OFFICE

In re Application of
Howard F. Snyder,
Serial No. 582,150, Div. 25, Room 5709
Filed June 14, 1922,
For WASHING MACHINES.

Hon. Commissioner of Patents,
Present.

Sir:

A supplemental oath by Lettie Snyder, executrix of the estate of Howard F. Snyder, deceased, is filed herewith together with an affidavit of John Mikulasek as to the sales of the Maytag Washing Machine embodying the invention here involved.

Very respectfully,

Wallace R. Lane
Attorney

March 18, 1932.

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MAR 1922

IN THE UNITED STATES PATENT OFFICE

In re Application of
Howard F. Snyder,
Serial No. 568,158
Filed June 14, 1922,
Div. 25, Room 5709

WASHING MACHINES

SUPPLEMENTAL OATH UNDER RULE 48.

STATE OF IOWA)
) SS:
COUNTY OF JASPER)

Lettie E. Snyder of Newton, Iowa, being duly sworn, deposes and says that she is the executrix of the estate of Howard F. Snyder the above identified applicant, deceased; that she has carefully read the amendment filed in the above identified application January 26, 1923; that to the best of her knowledge and belief the subject matter of said amendment was part of Howard F. Snyder's invention; was invented before he filed his original application above identified for such invention; was not known or used before his invention; was not patented or described in a printed publication in any country more than two years before his application; was not patented in any foreign country on an application filed by himself or his legal representatives or assigns more than twelve months prior to his application; was not in public use or on sale in this

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country for more than two years before the date of his application, and has not been abandoned.

Mrs Lettie Snyder

Subscribed and sworn to before me this 29th day of January, 1932.

Lewis L. Johnson
Notary Public.

MAR 18 22

UNITED STATES PATENT OFFICE.

In re Application of
EDWARD F. MEYER,
(Deceased)
Serial No. 567,168,
Filed June 14, 1922,
Div. 26, Room 515.

Washing Machine

AFFIDAVIT

STATE OF IOWA }
County of Jasper } ss

JOHN MIKULASEK, of Newton, Iowa, who being first duly sworn, says:

That [illegible] years prior to June 14, 1922, [illegible] the above application of Edward F. Meyer was filed [illegible] United States Patent Office, and continuously since, he has been employed by The Maytag Company, of Newton, Iowa, the assignee of said Meyer application, and having all of such period charge [illegible] to keep in close working contact with [illegible] and in charge with the invention disclosed in said application, and with its manufacture and extensive sale by the Maytag Company.

That previous to 1920 there had various old types of washing machines [illegible] generally made and sold in the United States, among which

[illegible] were those [illegible] and which [illegible] were subjected to [illegible]

[illegible] the clothes [illegible] [illegible] [illegible] [illegible]

(3) The oscillating type machine. In these machines the tubs themselves were generally oscillated and the clothes thereby forced against rubbing projections on the interior of the machine and scrubbed thereby.

(4) The vacuum cup type machine. In these the vacuum cup plungers were driven up and down against the clothes and the clothes cleaned by the rubbing action of the vacuum cups and by the action of the so-called vacuum.

Generally speaking, this was the commercial condition at the time Snyder made the invention shown in the above identified application. The present Snyder invention embodies a radically new principle of washing clothes, fabrics or other materials. It consists in rapidly forcing washing fluids in a container first in one and then an opposed direction through and around the materials to be washed and at the same time substantially suspending the clothes in the fluids while being washed. In other words, the cleaning of the clothes was effected largely by the fluids while suspended in the fluids by the action of the fluids themselves as distinguished from rubbing or scrubbing them on or by mechanical means in the previously known ways.

The Snyder washing machine was so radically new and so different from anything that preceded it that when it was offered to the public in 1922 great difficulty was had in initially introducing it. However, once it was introduced, there came to be a great public demand for it. This was largely due to its great efficiency and superiority over previous types of machines. The invention disclosed in this application accomplished results and had advantages not present in or possessed by previous types of machines. Some of these results and advantages are pointed out in the Snyder specification with which I am familiar.

So great was the demand for these machines that within a short time after they were sold they largely supplanted the Maytag Company's manufacture of various of the above types

washing machines which had for many years been previously made and sold in large quantities by The Maytag Company.

From April, 1922, to the end of 1926, The Maytag Company sold between 600,000 and 700,000 of the machines embodying the Snyder invention of the present application, and from 1922 up to the present time The Maytag Company sold approximately 1,500,000 of these machines, most of which are still in use in homes all over the United States.

The inherent advantages possessed by the Snyder machine and its advantages over what preceded it have been largely responsible for the tremendous sales and the ever-increasing demand for this type of machine.

So radically different is the machine of the Snyder application from anything that prededed it that it has come to be recognized as a radically new and distinct type of washing machine. It is generally known to the public as the "gyrator" or "agitator" type of machine. This distinguishes it from any previously known type. This new type of washing machine has, since it was first put upon the market, come to be the largest selling type of washing machine in the United States. It is well known throughout the entire country.

The business of The Maytag Company is and has been for a number of years largely based on the manufacture and sale of this novel type of washing machine.

John Mikulasek

Subscribed and sworn to before me this 30th day of December, 1931.

Lewis R. Johnson
Notary Public.

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MAR 18 1932

PATENT OFFICE
MAR 19 1932

IN THE UNITED STATES PATENT OFFICE

In re Application of
Howard F. Snyder,
Serial No. 568,158, Div. 25, Room 5709
Filed June 14, 1922,
for WASHING MACHINES.

Hon. Commissioner of Patents,
Present.

Sir:

ATTENTION: Chief Draftsman.

The Office Draftsman is requested to apply the reference ordinal "69" to Figure 4 of the drawing as indicated in red ink on the attached print. Kindly charge the cost to the Patent Office account of Parkinson & Lane.

Very respectfully,

Wallace R. Lane
Attorney

March 18, 1932.

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Fig. 4.

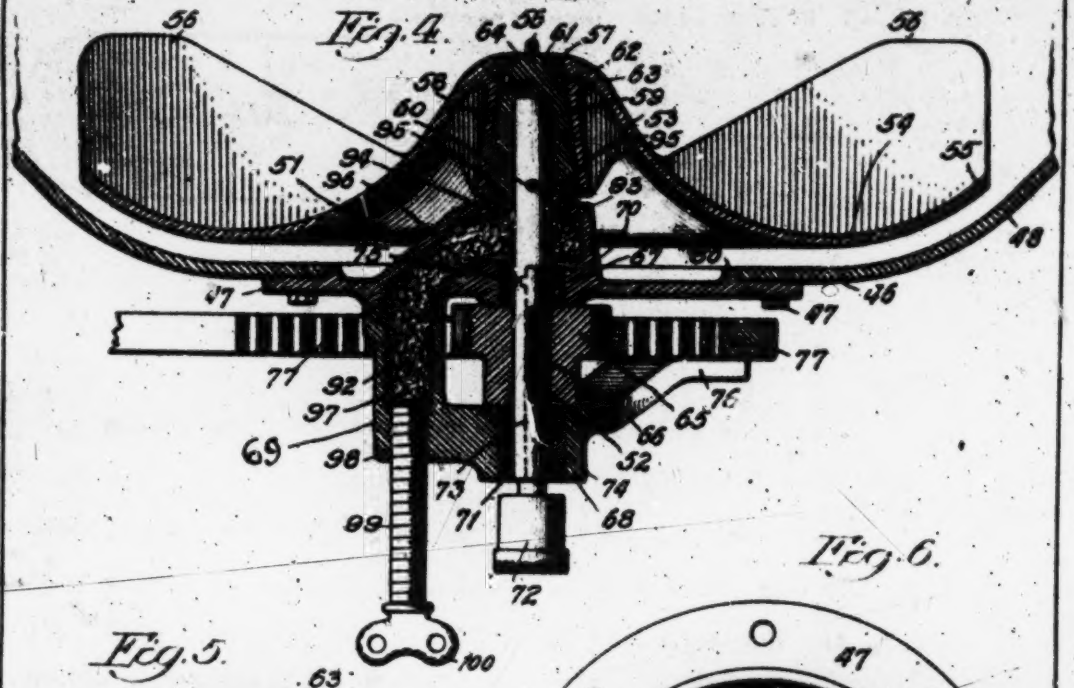


Fig. 5.

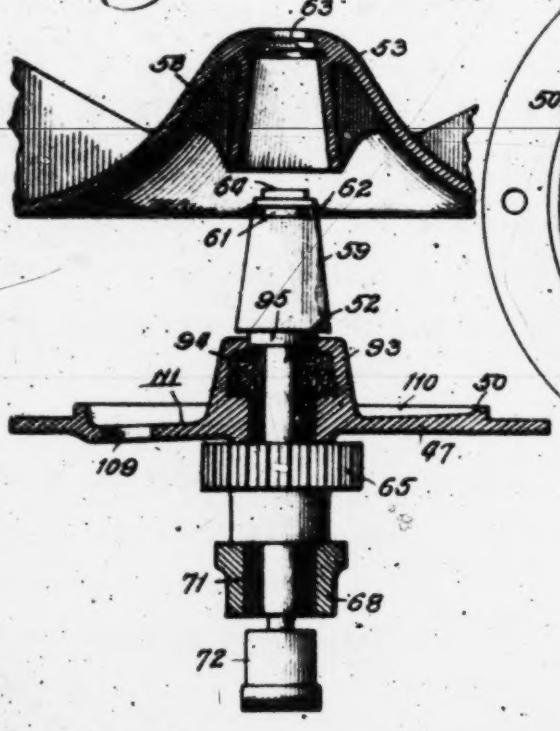
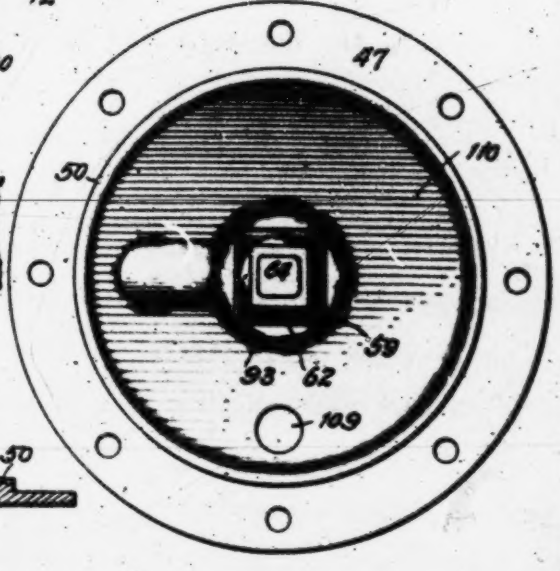


Fig. 6.



Inventor:
Howard F. Snyder.
by Wallace R. Lane.
Atty.

177 560158

Div. 25 Room 3709

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Please find below a communication from the EXAMINER in charge of this application.

Thomas E. Robertson
Commissioner of Patents

Mar. 24, 1932

Applicant: H. F. Weiss

Wallace M. Lane,
Marquette Bldg.,
Chicago, Illinois.

Ser. No. 546,158
Filed June 14, 1922
For Washing Machines

MAR 24 1932

Additional references cited against the claims:

Walker	1,259,939	Mar. 19, 1918	259/101
Jardine (British)	18,202	Oct. 2[illegible], 1891	259/101 (1 sht.)
Henin et al. (French)	363,514	Feb. 20, 1906	259/101 "

Claims 1, 5, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 23, 24, 27, 30, 35, 36, 39, 44, and 47 to 65 inclusive are now on file in the application.

As now advised claims 1, 5, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 23, 24, 27, 30, 35, 36, 39, 44, 47, 50, 54, 55, 56, 57, 58, 59, 60, 63 and 64 inclusive are allowable.

Claims 48 and 52 are rejected on Coffield et al. of record in view of either Nielsen of record or Walker, taken separately. To incline the bottom of Coffield et al. would not constitute invention in view of Nielsen or Walker.

Claims 49 and 53 are rejected as not patentably distinguishing from Coffield et al. To make the blades 6 of Coffield et al. with lateral impelling faces of substantial area would be merely a matter of degree.

Claim 51 is rejected on Coffield et al. on which it is readable.

Claims 61, 62 are rejected as not structurally defining over Jardine. The function of claim 61 differs from [illegible] the structure does not, the impeller being the only [illegible] particularly specified. Claim 62 does not define [illegible]

functionally except as to sequence of movement is [illegible]

Claim 27 is rejected as indefinite. The term "conveyor" does not define over Henin in view of merely recite that circular and rotary movements be imparted to the liquid and it is believed apparent that Henin's [illegible] is capable of creating such movements.

[illegible]

[illegible]

[illegible]

MAR 31 52

IN THE UNITED STATES PATENT OFFICE

In re Application of

[redacted]

[redacted] WASHING MACHINE

[redacted]

[redacted]

[redacted]

being mounted upon said shaft for movement therewith in a fixed plane, said impeller having on its upper surface a plurality of upstanding wing-like blades, each of which is of substantial height and length, and provided with lateral impelling faces of substantial area, the impeller and tub being so constructed and arranged relative to each other as to cooperate while the impeller is reciprocated for whipping the fluid and violently forcing it first in one and then in an oppositely upward circulatory direction against the interior of the tub and through and around the materials being washed, and substantially suspending the materials in the fluid by the moving fluid, and means for imparting a rapid rotary reciprocatory motion to the said shaft and impeller.

Substitute for claim 49:-

49. A washing machine comprising in combination, a tub for containing cleansing liquid and materials to be cleansed, said tub having a bottom portion and an upwardly extending wall portion, the interior surface of which is free from rubbing projections, a rotary reciprocatory impeller mounted in the tub adjacent its bottom, having a base and a plurality of blades, each of which is of substantial height and lateral area, and a central portion projecting upwardly from the base, the upper surface area of the base being considerably less than the horizontal cross-sectional area of the tub through its upwardly extending portion, the margin of said base being spaced a substantial distance away from the upwardly extending portion of the tub, said tub and impeller being so constructed and positioned relative to each other that when the impeller is rapidly reciprocated each blade and its adjacent portion of the

impeller base will simultaneously drive the cleansing fluid in one and then an opposite outward upward circulatory direction toward and around the clothes, and set in cooperation with the interior of the tub to cause violently flowing opposed currents of liquid to meet and flow inwardly and downwardly toward the central portion of the tub, and substantially suspend the materials in the fluid while being washed, a rotary reciprocating drive shaft extending upwardly through the bottom of the tub into the interior thereof for supporting the impeller for movement in a fixed plane, and power means for rapidly reciprocating the shaft and impeller for the purposes set forth.

Substitute for claim 25

25 65. A washing machine comprising in combination, a tub, said tub having a main body portion, the interior of which is substantially free of scrubbing projections, and a bottom portion, a rotary reciprocatory liquid impeller mounted for operation in a fixed plane in the tub, the outer portion of which is spaced a considerable distance from the body portion of the tub and having a plurality of blades projecting therefrom, said tub and impeller being so constructed and positioned relative to each other that when the impeller is rapidly reciprocated each blade and its adjacent portion of the impeller base will simultaneously drive the cleansing fluid in one and then an opposite outward circulatory direction away from the plane of the impeller through and around the clothes, and set in cooperation with the interior of the tub to cause violently opposed currents of fluid in a general vertical direction to meet and flow inwardly and

toward the impeller, whereby the materials are substantially suspended in the fluid and cleansed while thus suspended, a driving shaft extending into the tub on which the impeller is mounted for movement therewith, and power means for rapidly reciprocating the shaft and impeller.

Substitute for claims 52 and 53:-

26 65. In a washing machine for cleansing fabrics by forcing cleansing fluid through them while substantially suspended by the action of the fluid, as distinguished from pulling or pushing the fabrics through the fluid or against scrubbing surfaces, or otherwise scrubbing them by mechanical means, a tub, substantially imperforate a rotary reciprocatory impeller mounted to operate in a fixed plane having blades of substantial height and area projecting therefrom in a direction toward the fabrics while they are being cleansed, said tub and impeller being so constructed and arranged as to cooperate while the impeller is in operation for whipping the fluid and violently forcing it ~~first in one and then in an opposite outward axial and circulatory general direction toward the fabrics and against and approximately parallel to the interior of the tub~~, and through and around the materials, and substantially suspending the materials in the fluid while being washed, and power means for rapidly reciprocating the impeller. Add (43 cls 27-34)

Claim 61, line 1, after "tub" insert ---whose interior is free from substantial scrubbing elements; line 9, after "said" insert ---tub,---.

Substitute for claim 62:-

95. A washing machine comprising in combination, a tub for containing water and goods to be washed, a rotary reciprocatory impeller in the tub having flange-like means extending therefrom of substantial height and lateral area, said tub and impeller, together with its flange-like means, being so constructed, proportioned and arranged with respect to each other that while the impeller is in operation the fluid will be rigorously moved about in devious paths within the tub, and the resultant general direction of the movement of the cleansing fluid and the materials to be cleansed is normally radially outward from the central portion of the tub, then vertically, and a general rotary progression about the inside of the tub first in one direction, then in opposite direction, and then inwardly toward the impeller whereby the fabrics will be cleansed while substantially sustained by the action of the fluid, and will be freely and continuously driven about in the fluid by the movements thereof in a turbulent manner, and in devious paths, and motor driven means for rapidly reciprocating the impeller for the purposes set forth.

Substitute for claim 65:-

39 VI. The method of washing fabrics by forcing cleansing liquid through and around them while substantially suspended by the action of the fluid, as distinguished from pulling fabrics through the fluid against scrubbing corrugations, or otherwise scrubbing them by mechanical means, comprising immersing the fabrics in a washing fluid in a container, then vigorously and rapidly impelling the washing

fluid in one and then in an opposite outward circulatory direction away from the plane of the source of impulsion and through the fabrics and, circumferentially along the interior of the container in rapid succession, and causing these violently opposed currents of fluid to meet and flow inwardly and toward the central portion of the container, and toward the source of impulsion thereby substantially suspending the fabrics in the fluid and cleansing them while thus suspended.

add the following:-

78. The method of washing fabrics by forcing cleansing fluid through them while substantially suspended by the action of the fluid, as distinguished from pulling fabrics through the fluid against scrubbing corrugations, or otherwise scrubbing them by mechanical means, comprising immersing the fabrics in a washing fluid in a container, then vigorously agitating the washing fluid and rapidly forcing it toward the fabrics and away from the plane of the source of agitation and vertically along the interior surface of the container first in one and then in an opposite, circumferential direction, back and forth through and around the fabrics, and causing the violently moving opposed currents of liquid to meet and flow inwardly and vertically toward the source of agitation, whereby the fabrics are caused to be freely moved about by the action of the fluid and cleansed while thus moved.

REMARKS

The suggestions made by the Examiner at an interview today which have resulted in the presentation of the foregoing claims, which are now believed to be in condition for allowance, are much appreciated. At this interview these claims were considered, in view of the art recently cited by the Examiner and other art already of record. There was pointed out to the Examiner the following in connection therewith:-

Applicant has experienced great difficulty in the selecting language to claim adequately and define properly his invention due to the peculiar water action in the clothes which causes them to be so rapidly cleansed while sustained in the water by the devious rapid movements thereof though the general paths of movement are readily discernible.

Nothing in the prior art cited accomplishes the result of the Snyder invention nor are there any devices in the art which function in a similar manner or can accomplish the same result. Neither Coffield et al (owned by applicant's assignee) Nielsen, Walker, Jardine nor Henin last cited by the Examiner meet the spirit of the invention as attempted to be depicted in the only claims (48, 49, 51, 52, 53, 61, 62, 65) now under rejection. In fact the operative action of each is diametrically opposed to that of Snyder.

Snyder depends for the washing of fabrics upon the rapid and vigorous movements of the water in the tub for sustaining the fabrics in the water out of substantial

scrubbing contact with any mechanical parts and simultaneously causing the fabrics to be washed by the action of the water alone while thus sustained.

On the other hand, Coffield et al, Jardine and Henin each rely upon seizing the clothes with a mechanical pin or other dolly and dragging them through the water and rigorously scrubbing them. Nielsen and Walker are not clothes washing machines and have nothing in common with Snyder.

The new claims now substituted for those at present under rejection are filed in lieu thereof without waiving anything of the invention attempted to be covered by those for which the herein are substituted, but have been reworded to try to better express and define the elements and functions of the Snyder machine and the novel method of washing which may be accomplished by it.

Very respectfully,

Walter R. Laun
Attorney

March 31, 1932.

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IN THE UNITED STATES PATENT OFFICE

In re Application of
Howard F. Snyder,
Serial No. 568,158,
Filed June 14, 1922,
Div. 25, Room 5709.

WASHING MACHINE

Hon. Commissioner of Patents,
Present.

Sir:

Supplemental to the amendment filed March 31, 1932, applicant amends as follows:-

Claim 56, line 4 before "base" insert ---substantially imperforate---.

Claim 56, line 10 cancel "against" and substitute ---along---; lines 11 and 12 cancel "against and around" and substitute ---along---.

Claim 59, line 6, after "impeller" (first occurrence) insert ---mounted for normal operation in a fixed plane---.

Claim 64, line 2 after "impeller" insert ---mounted for oscillation in a substantially fixed plane---.

Claim 64, line 3 before "base" insert ---substantially imperforate---.

Claim 67, line 18 before "circulatory" insert ---upward---.

Claim 68, line 16 at end of line after "and" (second occurrence) insert ---in a general vertical direction---.

Claim 69, line 6, after "a" (second occurrence) insert ---substantially imperforate---.

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185

Claim 69, line 10 after "arranged" insert ---as---; line 12 cancel "first in one and then in"; cancel lines 13 and 14; line 15 cancel "to the interior of the tub," and substitute ---outwardly, downwardly and in a general vertical and circulatory movement and circumferentially of the tub first in one and then in an opposite direction---.

Claim 70, line 2 after "washed," insert ---said tub being substantially free from rubbing projections---.

Claim 71, line 10 before "along" insert ---circumferentially---.

Claim 72, line 9 cancel "and" and insert ---vertically---; line 10 after "opposite" insert ---circumferential---.

Very respectfully,

William R. Lane

Attorney

April 12, 1932.

310

RECEIVED MAY 13 1922 PATENT OFFICE

UNITED STATES PATENT OFFICE

In re Application of
HOWARD F. SNYDER,
Ser. No. 568,158,
Filed June 14, 1922,
Div. 25, Room 5709

WASHING MACHINE

SUPPLEMENTAL AMENDMENT

May 11, 1923

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

Supplemental to amendment filed April 18, 1923, applicant, for the correction of certain errors, further amends as follows:

Page 2, line 4, please let "These and the other objects" be the beginning of a new paragraph.

Page 3, line 1, please let "As another object of the invention" be the beginning of a new paragraph.

fb

Page 3, line 19, please let the insert "Still further objects of this invention" be the beginning of a new paragraph.

Page 7, line 23, please let the insert "For the purposes of exemplifying my invention" be the beginning of a new paragraph.

Page 1, line 2, after "Snyder" insert a comma (,).

Page 2, line 5, after "invention" cancel the comma (,).

Page 2, line 6, after "machine" insert a comma (,); line 7, after "gyratator" cancel the comma (,); line 12, after "tub" insert a comma (,); line 13, at the end of the

before "so coact" insert a comma (,) after "therein"; line 18, insert a comma (,) after the inserted word "liquid"; line 25, after "projections" insert a comma.

Page 3, line 12, after "paths" insert a comma (,).

Page 5, line 2, after "scale" cancel the comma (,).

Page 7, line 7, after "42" cancel the comma (,); line 11, after "positions" cancel the comma (,); line 12, after "tub" cancel the comma (,); line 23, in the insert after "omitted", line 7 of said insert, please insert a comma (,) after "tub."

Page 8, in the substitution for lines 4 to 12, line 21 of page 2 of said substitution, change "lob-shaped" to - lobe-shaped.

Page 9, line 10, after "74" cancel the comma (,).

Page 10, line 17, after "rotate" insert a comma (,).

Page 11, line 19, after "106" insert a comma (,); line 21, after "107" insert a comma (,).

Claim 24, line 2, after "trough" (first occurrence) insert a comma (,); line 5, after "trough" (first occurrence) insert a comma (,).

Claim 23, line 2, change "cu-shaped" to cup-shaped; same line, change "frust-conical" to frusto-conical; line 6, change "frust-conical" to frusto-conical; line 5, change "around" to - a round.

Claim 1, line 7, after "agitation" insert a comma (,).

Claim 36, line 1, after "machine" insert a comma (,).

Claim 54, line 1, after "combination" insert a comma (,).

Claim 58, line 4, after "impeller" cancel the comma (,).

Claim 63, line 7, after "tub" insert a comma (,).

Claim 66, line 1, after "combination" insert a comma (,).

Claim 67, line 1, after "combination" insert a comma (,).

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Claim 68, line 1, after "combination" insert a comma (,).

Claim 70, line 1, after "combination" insert a comma (,).

REMARKS

The above amendments are made merely to correct certain obvious errors and informalities. As this application has been in condition for allowance for some time inquiry is made as to when such action may be expected.

Respectfully submitted,

Wallace R. Lane

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ADDRESS ONLY THE COMMISSIONER OF PATENTS WASHINGTON, D. C.

Div. 25 109 JCS:LEC **Serial No.** 568,158

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON June eleventh, 1932.

Howard F. Snyder, Assor. etc.,

Your APPLICATION for a patent for an IMPROVEMENT in Washing Machines

filed June 14,1922 has been examined and ALLOWED with 39 claims.

The final fee, TWENTY-FIVE DOLLARS, WITH $1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of $25 and $1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN $25 PLUS $1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Thomas E. Robertson
Commissioner of Patents.

Wallace K. Lane,
Marquette Bldg.,
Chicago, Illinois.

568158
1932

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

Div. 25. Room 5709 DEPARTMENT OF COMMERCE Paper No. 32
Address only "The Commissioner of Patents, Washington, D. C." and not any official by name
UNITED STATES PATENT OFFICE
WASHINGTON
All communications respecting application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the EXAMINER in charge of this application

June 11, 1932

Thomas E. Robertson
Commissioner of Patents.

Applicant Howard F. Snyder

Ser. No. 568,158
Filed June 14, 1922
For Washing machines

Wallace H. Lane
Marquette Bldg.,
Chicago, Illinois.

In accordance with the provisions of Order No. 2306, dated March 12, 1917, which reads as follows:

* * * * * * * *

Obvious informalities in the application may be corrected by the examiner, but any correction must be in the form of an amendment, approved by the Principal Examiner in writing, placed in the file, and made a part of the record. The changes specified in the amendment will be entered by the clerk in the regular way.

* * * * * * * *

the changes, hereinafter specified, are made by the examiner in the application above identified.

Should these changes not be satisfactory to the applicant, appropriate amendment may be made under the provisions of Rule 78, provided the specification has not been printed.

The application has been amended as follows:

The renumbering of the claims on the preparing the case for issue has been made as follows:

Former number,	Renumbered for issue as,
1	1
5	3
25 (amdt. 6-17-26)	19
26 (" ")	20
4 (" 6-10-25).	4
5 (" ")	5
21 (" ")	14
25 (" ")	16
29 (" ")	18
45 (" 8-30-23)	15
32 (" 10-19-22)	13
12 (original)	6
13 (")	7
16 (")	8

2 (568,158)

Former number,	Renumbered for issue as,
20 (orginal)	9
21 (")	10
22 (")	11
29 (")	12
66	22
67	23
68	25
69	26
70	35
71	38
72	39
50	24
54	27
55	28
56	29
57	30
58	31
59	32
60	33
61	34
63	36
64	37
39 (amdt. 6-13-27)	2
44	17
47	21

C F Berkey
Examiner.

566158

195

• • • • • • • •

1646 (Letters Patent No. 1,866,779 to H. F. Snyder, Dated July 12, 1932.)

The Letters Patent No. 1,866,779 to H. F. Snyder, dated July 12, 1932, was made a part of the File Wrapper at this place, but same is omitted from the printed record to avoid duplication in as much as a copy of said Letters Patent heretofore appears in this printed record at page 563 as Plaintiff's Exhibit 1.

MAR - 8 1933

1593

District Court of the United States

Eastern DISTRICT OF New York

33

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was filed on the 6th day of March, 1933, in this court an action, suit, or proceeding No. Equity 6888, entitled.

Name The Maytag Co., Plaintiff,

Address Newton, Iowa

versus

Name Brooklyn Edison Co. Defendant,

Address Brooklyn NY

brought upon the following patents:

	PATENT NO.	DATE OF PATENT	PATENTEE
1	1,866,779	July 12, 1932	Howard F. Snyder
2			
3			
4			
5			

In the above-entitled case, on the ..... day of ..... 193 , the following patents have been included by ..... (insert amendment, answer, cross bill, or other pleading):

	PATENT NO.	DATE OF PATENT	PATENTEE
1			
2			
3			
4			
5			

In the above-entitled case the following decision has been rendered or decree issued:

IN WITNESS WHEREOF I have affixed my hand this 8th day of March, 1933, at Brooklyn NY

Percy W. Bulke
Clerk of said Court.

by R. Bean,
Deputy Clerk

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1595

APR - 5 1933
PATENT OFF.

District Court of the United States

Southern DISTRICT OF N.Y.

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was filed on the 3rd day of April, 1933, in this court an action, suit, or proceeding No. E 75-202, entitled:

Name The Maytag Co, a corporation, Plaintiff,
Address Delaware

VERSUS

Name Easy Washing Machine Corporation, Defendant,
Address Delaware

brought upon the following patents:

	PATENT NO.	DATE OF PATENT	PATENTEE
1	1,866,779	July 12-1932	Pfaff
2			
3			
4			
5			

In the above-entitled case, on the _____ day of _____, 193 , the following patents have been included by _____ (insert amendment, answer, cross bill, or other pleading):

	PATENT NO.	DATE OF PATENT	PATENTEE
1			
2			
3			
4			
5			

In the above-entitled case the following decision has been rendered or decree issued:

IN WITNESS WHEREOF I have affixed my hand this 3rd day of April, 1933.

Walter Mecca
Clerk of said Court.

568158
198

MAIL DIVISION
OCT - 9 35
SERVICE OFFICE

1597 of 35

District Court of the United States

Eastern DISTRICT OF New York

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was filed on the 8th day of March, 1933, in this court an action, suit, or proceeding No. E 6884, entitled:

Name The Maytag Co., Plaintiff,

Address Newton, Iowa

Name Brooklyn Edison Co. (Inc.), Defendant,

Address Brooklyn, N.Y.

brought upon the following patents:

	PATENT NO.	DATE OF PATENT	PATENTEE
1	1,866,779	July-12-1932	Howard D. Snyder
2		(Filing of Complaint reported March-8-1933)	
3			
4			
5			

In the above-entitled case, on the ____ day of ____, 193 , the following patents have been included by ____ (insert amendment, answer, cross bill, or other pleading):

	PATENT NO.	DATE OF PATENT	PATENTEE
1			
2			
3			
4			
5			

In the above-entitled case the following decision has been rendered or decree issued:

Interlocutory Decree in favor of Pltff. filed & entered October-7-1935

IN WITNESS WHEREOF I have affixed my hand this 8th day of October, 1935, at Brooklyn, N.Y.

Percy H. Stokes
Clerk of said Court.

By E. R. Feuer
Deputy Clerk

5-6-81/99

1597

1599 #36

MAILED OCT 24 65 PATENT OFFICE

District Court of the United States

DISTRICT OF N.J.

HONORABLE COMMISSIONER OF PATENTS,
Washington, D.C.

Sir:

In compliance with the Act of February 21, 1925 (43 Stat. L. 937), you are advised that there was filed on the 21st day of October, 1965, in this court an action, suit, or proceeding No. 81-259, entitled:

Name The Maytag Company, Plaintiff,
Address Delaware

versus

Name Hurley Machine Co. and Clutch Household Division,
Address Utilities Corp. Illinois

brought upon the following patents:

	PATENT NO.	DATE OF PATENT	PATENTEE
1	1,866,779	7/12/32	Jeffs.
2			
3			
4			
5			

In the above-entitled case, on the _____ day of _____, 19__, the following patents have been included by _____ (insert amendment, answer, cross bill, or other pleading):

	PATENT NO.	DATE OF PATENT	PATENTEE
1			
2			
3			
4			
5			

In the above-entitled case the following decision has been rendered or decree issued:

IN WITNESS WHEREOF I have affixed my hand this 21st day of Oct., 1965, at N.Y.

Clerk of said Court.

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#37

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PATENT OFFICE

District Court of the United States

DISTRICT OF DELAWARE.

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was filed on the 27th day of December, 1935, in this court an action, suit, or proceeding No. 1157 In Equity, entitled:

Name: The Apex Electrical Manufacturing Company, a corporation of Ohio, Cleveland, Ohio, and Plaintiff,

Address: Montgomery Ward & Co., Incorporated, a corporation of Illinois, Chicago, Illinois,

versus

Name: The Maytag Company, a corporation of Delaware, Defendant,

Address: Newton, Iowa,

brought ~~upon the following patents~~ under Declaratory Judgment Act:

	PATENT NO.	DATE OF PATENT	PATENTEE
1	1,866,779	July 12, 1932	Howard F. Snyder
2			
3			
4			
5			

In the above-entitled case, on the _____ day of _____, 193 , the following patents have been included by _____ (insert amendment, answer, cross bill, or other pleading):

	PATENT NO.	DATE OF PATENT	PATENTEE
1			
2			
3			
4			
5			

In the above-entitled case the following decision has been rendered or decree issued:

IN WITNESS WHEREOF I have affixed my hand this thirty-first day of December, 1935, at Wilmington, Delaware.

R. C. Nealy
Clerk of said Court.

568158
201

1603 #38

United States Circuit Court of Appeals

SECOND CIRCUIT

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was filed on the 18th day of May, 1932, in this court an action, suit, or proceeding No. ..... entitled:

Name The Maytag Company, Plaintiff,

Address Delaware and Newton Iowa.

DEFEND

Name Brooklyn Edison Company, Inc, Defendant,

Address Brooklyn N Y

brought upon the following patents:

PATENT NO.	DATE OF PATENT	PATENTEE
1. 1,868,779	July 12, 1932	H F Snyder
2.		
3.		
4.		
5.		

In the above-entitled case, on the ..... day of ....., 193 , the following patents have been included by ..... (insert amendment, answer, cross bill, or other pleading):

PATENT NO.	DATE OF PATENT	PATENTEE
1.		
2.		
3.		
4.		
5.		

In the above-entitled case the following decision has been rendered or decree issued:

IN WITNESS WHEREOF I have affixed my hand this 19th day of May, 1932, at New York City.

Clerk of said Court.

[illegible]

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1936
U.S. PATENT OFFICE

United States Circuit Court of Appeals

2nd CIRCUIT

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

Sir:

In accordance with the Act of February 18, 1922 (42 Stat. L. 388), you are advised that there was filed on the 14th day of May, 1936, in this court an action, suit, or proceeding No. _____, entitled:

Name The Sterling Company, Plaintiff,

Address Baltimore and Preston Sts.

versus

Name Brooklyn Edison Company, Inc., Defendant,

Address Brooklyn, N. Y.

brought upon the following patents:

PATENT NO.	DATE OF PATENT	PATENTEE
1,966,766	July 17, 1934	H. P. Sterling
2		
3		
4		
5		

In the above-entitled case, on the _____ day of _____, 193_, the following patents have been included by _____ (Court amendment, answer, cross bill, or other pleading):

PATENT NO.	DATE OF PATENT	PATENTEE
1		
2		
3		
4		
5		

In the above-entitled case the following decision has been rendered or decree issued:

Decree severable

IN WITNESS WHEREOF I have affixed my hand this 20th day of November, 1936, at New York, N. Y.

Clerk of said Court

568/158
203

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FEB 23 1937

IN THE UNITED STATES PATENT OFFICE

In the matter of
Letters Patent No. 1,866,779
Issued July 12, 1932
To Howard P. Snyder
For Washing Machines

RECORDED
U. S. PATENT OFFICE
ISSUE DIVISION
FEB 23 1937
LIBER 2 PAGE 549

DISCLAIMER

To the Honorable Commissioner of Patents:

Your Petitioner, The Maytag Company, a corporation of Delaware, having a place of business at Newton, Jasper County, Iowa, represents that Letters Patent of the United States No. 1,866,779 were granted to [illegible], assignor of Howard P. Snyder, on July 12, 1932, for a certain improvement in Washing Machines, and that it is now the sole owner of the entire right, title and interest in and to said letters patent; that it has just become aware of reasons to believe that through inadvertence, accident or mistake, and without any fraudulent or deceptive intention on [illegible] part, the patentee claimed more than that of which he was the original or first inventor or discoverer in the following claims, to-wit:

[redacted]

RECORDED
U. S. PATENT OFFICE
ISSUE DIVISION 1609
FEB 23 1937

LIBER 3 PAGE 550

"38. The method of washing fabrics by forcing cleansing liquid through and around them while substantially suspended by the action of the fluid, as distinguished from pulling fabrics through the fluid against scrubbing corrugations, or otherwise scrubbing them by mechanical means, comprising immersing the fabrics in a washing fluid in a container, then vigorously and rapidly impelling the washing fluid in one and then in an opposite outward circulatory direction away from the plane of the source of impulsion and through the fabrics and circumferentially along the interior of the container in rapid succession, and causing these violently opposed currents of fluid to meet and flow inwardly and toward the central portion of the container, and toward the source of impulsion thereby substantially suspending the fabrics in the fluid and cleansing them while thus suspended."

And your Petitioner therefore hereby enters its disclaimer of the above claims of said Letters Patent.

Your Petitioner avers that the subjects matter of the remaining claims of said Letters Patent are the invention of said Snyder and are a material and substantial part of the thing patented, and are definitely distinguishable from the matter herein disclaimed.

Your Petitioner herewith tenders the sum of Ten ($10.00) Dollars to be applied as the statutory fee for entering this disclaimer.

Signed at Newton, in the County of Jasper, and State of Iowa, this 20th day of February, 1937.

THE MAYTAG COMPANY

By [signature]
Vice President

ATTEST:

[signature]
Assistant Secretary

WITNESS:

[signature]

[signature]

56858

FEB 23-37 158005 B Check 10.00

LAW OFFICE OF

PARKINSON & LANE

BANKERS BUILDING

CHICAGO February 19, 1937

WALLACE R. LANE
GEORGE MANAKE
FREDERICK F. MASON
CLARENCE J. LOFTUS
RALPH M. SNYDER
BENTON BAKER
LOUIS A. BISSON
CARL F. GEPPERT
J. REX ALLEN, JR.
JOHN W. LANE, Honorary

FEB 23 1937

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

Enclosed please find disclaimer in the matter of claims 1 and 38 of patent to Howard F. Snyder, assignor to The Maytag Company, No. 1,866,779, issued July 12, 1932, for Washing Machines, for filing.

In order to have this reach the Patent Office at the earliest possible moment, we are sending one copy by airmail and one copy by regular mail, with the statutory fee of Ten ($10.00) Dollars in each letter. After applying whichever is received first, kindly return the other check to us.

Respectfully,

Parkinson & Lane

L:S
Encs.

56158
206

April 6,1937.

The Maytag Company,
Cor. Washington and Lane,
Bankers Building,
Chicago, Illinois.

Gentlemen:-

Herewith, find subject matter in the Disclaimer in connection with Patent Number 1868779, Howard F.Snyder, Assor., Patent issued on July 12,1932.

This Disclaimer is to be attached to the original Patent.

Sincerely yours,

J. A. Brearley,
Chief Clerk.

Enclosure.

56815
207

PATENT DIVISION
FEB 8 1937
U.S. PATENT OFFICE

District Court of the United States

WESTERN District of MISSOURI

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

Sir:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was filed on the 5th day of February, 1937, in this court an action, suit, or proceeding No. 2992, entitled:

Name The Maytag Company, a corporation, Plaintiff,

Address Newton, Iowa

versus

Name General Electric Company, and General Electric Supply Corporation, both corporations, Defendant,

Address Kansas City, Missouri,

brought upon the following patents:

	PATENT NO.	DATE OF PATENT	PATENTEE
1	1,866,779	July 12, 1932	Howard F. Snyder, Assignor to The Maytag Company,
2			
3			
4			
5			

In the above-entitled case, on the _____ day of _____, 19__, the following patents have been included by _____ (insert amendment, answer, cross bill, or other pleading):

	PATENT NO.	DATE OF PATENT	PATENTEE
1			
2			
3			
4			
5			

In the above-entitled case the following decision has been rendered or decree issued:

In witness whereof I have affixed my hand this 5th day of February, 1937, at Kansas City, Missouri

A. L. ARNOLD
Clerk of said Court.

By B. B. [illegible] Deputy.

56 7/16 20 4

1617

#44

PATENT DIVISION
JUN 11 1937
U.S. PATENT OFFICE

District Court of the United States

SOUTHERN DISTRICT OF N.Y.

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was filed on the 3rd day of April, 1937, in this court an action, suit, or proceeding No. E 75-202, entitled:

Name The Maytag Company, a corporation, Plaintiff,
Address Delaware.

versus

Name Easy Washing Machine Corporation, Defendant,
Address Delaware

brought upon the following patents:

	PATENT NO.	DATE OF PATENT	PATENTEE
1	1,866,779	July 12-1932	Pfaff
2			
3			
4			
5			

In the above-entitled case, on the ..... day of ....., 193 , the following patents have been included by ..... (insert amendment, answer, cross bill, or other pleading):

	PATENT NO.	DATE OF PATENT	PATENTEE
1			
2			
3			
4			
5			

In the above-entitled case the following decision has been rendered or decree issued:

Filed final decree dismissing complaint with costs - Conn J.

IN WITNESS WHEREOF I have affixed my hand this 9th day of June, 1937, at N.Y.

Clarence Weiner
Clerk of said Court.

56715
209

JUN 11 1937
U.S. PATENT OFFICE

1619

District Court of the United States

Southern DISTRICT OF N.Y.

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was [illegible] on the 21st day of October, 1935, in this court an order, rule, or proceeding No. E81-257, entitled:

Name The Maytag Company, a corporation, Plaintiff,
Address Delaware

vs.

Name Hurley Machine Company and Electric Household Utilities Corporation, Defendant,
Address Illinois

brought upon the following patents:

	PATENT NO.	DATE OF PATENT	PATENTEE
1	1,866,779	July 12-1932	Hoff
2			
3			
4			
5			

In the above-entitled case, on the ____ day of ____, 19__, the following patents have been included by ____ (insert specification, answer, cross bill, or other pleading):

	PATENT NO.	DATE OF PATENT	PATENTEE
1			
2			
3			
4			
5			

In the above-entitled case the following decision has been rendered or decree issued:

Final decree dismissing complaint with costs - Conn. J.

IN WITNESS WHEREOF I have affixed my hand this 9th day of June, 1937, at N.Y.

Clerk of said Court.

569/210

1922

CONTENTS:

Action	Papers.	
Granted	July 18, 1922	27.
	Sept 19 1922	28.
	October 22, 1922	29.
	Aug 30, 1923	30.
	October 2, 1923	31.
	Petition filed July 21, 1924	32.
	July 28 1924	33.
	June 10, 1925	34.
	June 12 1925	35.
	1925	36.
	July 1926	37.
	June 5 1926	38.
	Petition filed June 16 1926	39.
		40.
	July 23 1926	41.
	July 30, 1926	42.
	Aug 2 1926	43.
	Sept. 1926	44.
	OCT 7 1926	45.
	Feb 13 1928	46.
	MAR 17 1928	47.
		48.
		49.
	1932	50.

56812

1922

CONTENTS:

Mar 1, 1932

Mar 9, 1932

28. RESOLUTION MAR 21 1932

29. Amend't L. MAR 31

30. Amend't M. APR 1

Amend't C MAY 1

Amend't P.

Mar 3,

April 6-

Oct

Oct. 2

Jan

Feb 1

Feb 1

Feb

Feb

Feb

Feb

1676 (Part of Defendant's Exhibit 35.) 898-001

Snyder File History Patents—Cited by Examiner

United States

King	94,005
Kiehle	188,470
Pratt et al.	392,165
Werner	915,139
Mills et al.	1,118,210
Coffield et al.	1,131,466
Davis	1,240,826
Walker	1,259,939
Nielsen	1,276,254
Beckwith	1,298,645
Sieben	1,412,714
Hirschy	1,464,362

Foreign

(Br.) Jardine	18,202 of 1891
(Fr.) Henin	363,514 of 1906

1677 (Part of Defendant's Exhibit 35.)

(U. S. Letters Patent No. 94,005 to A. & G. H. King, August 24, 1869.)

1626

A. & G. H. King.

Washing Mach.

No. 94,005. Patented Aug. 24, 1869.

Fig. 1.

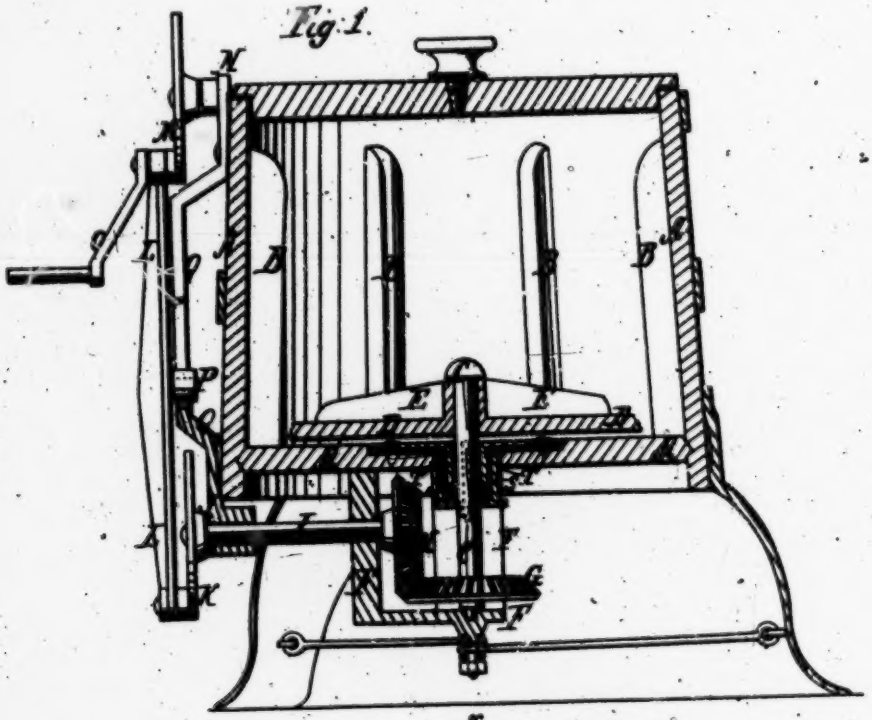
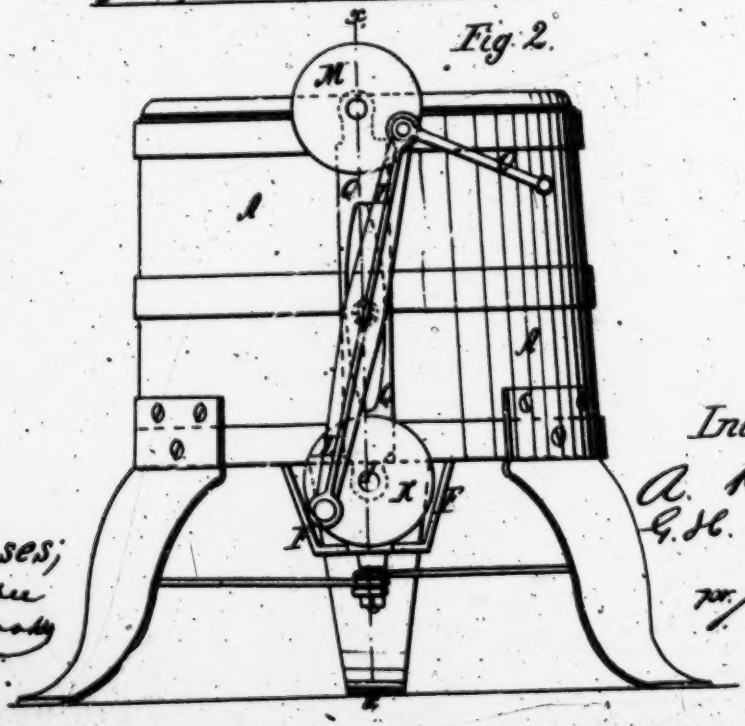


Fig. 2.



Witnesses;
G. W. Gabell
Wm. A. Brooks

Inventors;
A. King
G. H. King
per Munn & Co
Attorneys

ALEXANDER KING AND GEORGE H. KING, OF PAINESVILLE, OHIO.

Letters Patent No. 94,005, *dated August* 24, 1869; *reissue No.* 3,736, *dated November* 16, 1869.

IMPROVEMENT IN WASHING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, ALEXANDER KING and GEORGE H. KING, of Painesville, in the county of Lake, and State of Ohio, did invent a new and improved Washing-Machine; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of an improved machine, taken through the line *x x*, fig. 2.

Figure 2 is a side view of the same.

Similar letters of reference indicate corresponding parts.

Our invention has for its object to furnish an improved washing-machine, which shall be simple in construction and effective in operation, doing its work quickly and thoroughly; and

It consists in the construction and combination of the various parts, as hereinafter more fully described.

A is the body of the washing-machine, which is made cylindrical in its general form.

The body A may be made slightly tapering, if desired, and to the inner surface of its sides is attached a number of upright ribs B, extending from the bottom to, or nearly to the top of said body.

The ribs B should be rounded off upon their inner edges, to prevent them from wearing the clothes.

C is a shaft or spindle, passing down vertically through the centre of the bottom of the body A, and to its upper end is attached a circular plate, D, in such a way as to be carried around by the revolution of the said shaft C.

To the upper side of the circular plate D is attached a number of radial ribs or flanges, E, the upper edges of which should be rounded off to prevent them from wearing the clothes.

The lower end of the vertical shaft C revolves in a step in the lower or horizontal part of the bracket F, attached to the lower side of the bottom of the body or tub A.

To the lower end of the vertical shaft C is attached a bevel-gear wheel, G, into the teeth of which mesh the teeth of the bevel-gear wheel H, attached to the inner end of the horizontal shaft I.

The inner part of the horizontal shaft I revolves in bearings in one arm of the bracket F, and its outer part revolves in bearings in the arm or bracket J, attached to the lower part of the side of the body A.

To the outer end of the horizontal shaft I is attached a crank or crank-wheel, K, to the crank-pin of which is pivoted the lower end of the connecting-bar L, the upper end of which is pivoted to the crank-pin of the crank or crank-wheel M, pivoted to the upper part of the body A, or to a bar or bracket, N, attached to the said body.

To the crank-pin of the crank or crank-wheel M is attached the hand-crank O, by means of which the machine is operated.

To the centre of the connecting-bar L is attached an inwardly-projecting pin, P, which passes through a slot in the vertical bar Q, the ends of which are bent inward, and are attached to the side of the body A, so that the middle or slotted part of said bar may stand out a little from the said body A, as shown in fig. 1.

The slot in the bar Q should be made wider in its middle part, to give the necessary freedom of movement to the bar L, and at the same time enable it to properly control the movement of the cranks or crank-wheels K and M.

T and S are short tubes, fitting into each other, and to the outer end of the outer tube S, and to the inner end of the inner tube T, are attached, or upon them are formed plates, which overlap the outer and inner sides of the bottom of the body A.

The tubes S T are packed with suitable packing, to make them serve as a stuffing-box, to prevent the escape of the water.

The tubes S T are pressed together, compressing the packing, and at the same time securing the said tubes in place by bolts and nuts, said bolts passing through the bottom of the body A A, and through the plates attached to the said tubes S T.

V V are stay-rods or braces, passing from the central bolt or step X to each leg W of the washing-machine to stiffen the legs.

Having thus described our improvements,

What we claim, and desire to secure by Letters Patent, is—

1. The revolving disk D D, located near the bottom of the tub, and supported at the upper end of a vertical shaft which passes through the bottom of the tub.

2. The revolving disk, vertical shaft passing through the bottom of the tub and the stuffing-box, as shown.

3. The arrangement of the support for the step of the vertical shaft on brackets attached to the bottom of the tub, as shown.

4. The stay-rods or braces V, passing from the central bolt or step to each leg of the washing-machine for stiffening the legs.

5. The arrangement of the revolving disk D D, located at the bottom of the tub, and supported on a vertical shaft which passes through the bottom of the tub, and the direct vertical driving-shaft, and bevelled gearing G H, arranged below the tub.

6. The arrangement of the crank-wheels M K, the crank O, the connecting-bar L, the pin P, and slotted bar Q, as described and shown.

ALEX. KING.
GEO. H. KING.

Witnesses:
GEORGE E. BUCKLEY,
W. A. A. MCKINLEY,
J. T. TINKER,
HORACE ALVORD.

1679 (Part of Defendant's Exhibit 35.)

(U. S. Letters Patent No. 188,470 to J. Kiehle, March 20, 1877.)

1630

J. KIEHLE.

WASHING-MACHINE.

No. 188,470. Patented March 20, 1877.

Fig. 1.

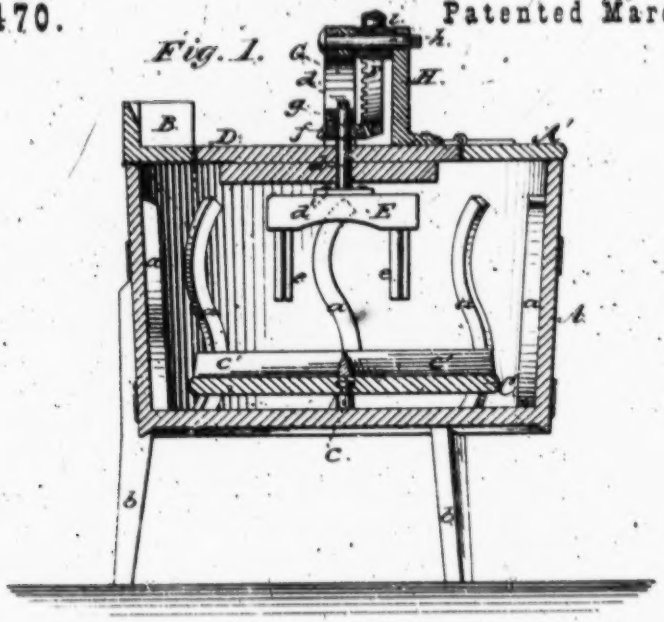


Fig. 4.

Fig. 2.

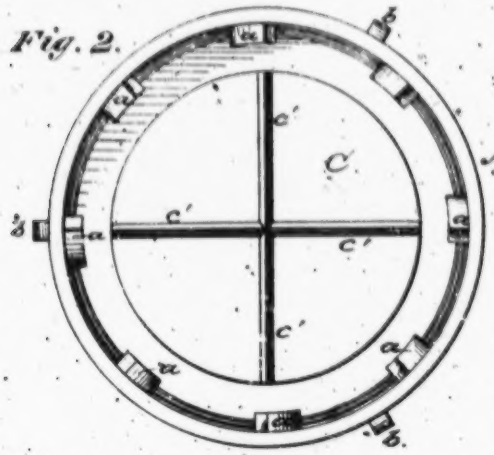
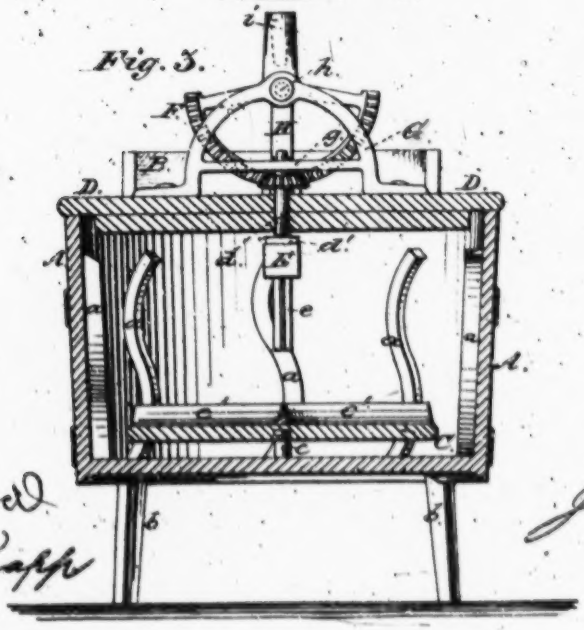


Fig. 3.



Witnesses:

J. H. Packard

Lanfear & Knapp

Inventor:

Jonas Kiehle

UNITED STATES PATENT OFFICE.

JONAS KIEHLE, OF CEDAR FALLS, IOWA, ASSIGNOR OF ONE-HALF HIS RIGHT TO L. N. BRONSON, OF SAME PLACE.

IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **188,470**, dated March 20, 1877; application filed February 6, 1877.

To all whom it may concern:

Be it known that I, J. KIEHLE, of Cedar Falls, in the county of Black Hawk and State of Iowa, have invented certain new and useful Improvements in Washing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to furnish a washing-machine that is easily manipulated, and will wash the clothes thoroughly without the danger of tearing them.

The invention consists of a tub or receptacle having on its inner side S or serpentine shaped projections or ribs, a revolving bottom on a pivot that is provided with ribs or projections on its upper face, and a revolving stirrer or beater, provided with downward-projecting or pendent grooved or cross-shaped stirrers attached to a cross-piece, to which an upright shaft or stud is attached, having a pinion on the upper end, and said pinion is operated by a segmental gear journaled on a horizontal shaft arranged in suitable bearings, and said segment has a socket secured thereto for the reception of a handle by which to operate the stirrers, all of which will be more fully described hereinafter, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical cross-section of my machine. Fig. 2 is a top or plan view, with the top removed. Figure 3 is a vertical transverse section of Fig. 1. Fig. 4 is an enlarged cross-section of one of the pendent stirrers.

In the drawing, A represents a tub or suitable receptacle of any desired size and shape. On the inside of this tub are secured a number of S or serpentine shaped ribs or projections, *a a*, and at one side is arranged a shelf, B, for the soap, &c. This tub is preferably provided with legs *b b*, to suit the ordinary height for washing. To the bottom of the tub is secured a pivot, *c*, upon which the plate C freely revolves, and it is provided with ribs or projections *c'* on its upper side, arranged in cross shape or at right angles to each other, and of triangular cross-section. To the top A' of the tub is hinged a cover, D, in the center of which is arranged a vertical shaft or stud, *d*, with a foot, *d'*, to which a cross-piece or stirrer, E, is secured. This cross-piece E has two or more pendants, or downward-projecting stirrers, *e*, grooved as shown in Fig. 4, secured to it. The shaft *d* has a bevel-pinion, *f*, secured to its upper end, and is journaled in a cross-bar, *g*, of the bracket G, that is fastened to the hinged cover D. Into the pinion *f* meshes a segmental bevel-wheel, F, that is secured to a short horizontal shaft, *h*, which is journaled at one end in the bracket G, while its other end revolves in another bracket, H. The segmental wheel F is provided with a socket, *i*, into which a suitable handle may be inserted, and by which motion is imparted to the segment-wheel F, pinion *f*, and stirrer E.

The operation is as follows: The clothes, with water and soap, are placed into the tub on the plate C, the hinged cover closed down, and motion imparted to the stirrer E by the pinions *f* and segmental wheel F, with a suitable handle. The stirrer E thus receives a semi-rotary motion, and, by moving the clothes backward and forward in the tub and against the ribs *a* thereof, and ribs *c* of the bottom C, they are thoroughly washed and cleaned. The revolving bottom prevents the clothes from catching against any part of the machine, and at the same time gives enough resistance to the stirrer and the clothes to thoroughly cleanse them.

The object in making the ribs on the inside of the tub of S or serpentine shape instead of straight or corrugated is, that the clothes to be washed will not catch on them and become torn as easily, and will yet be retarded and rubbed enough to cleanse them.

The advantages of my invention are, that it is very simple in its construction; it is not liable to get out of order; it is very effective and thorough in its operation; it will not tear the clothes; it can be furnished at a very small cost; it can be very easily repaired, and no water is splashed over the tub.

I am aware that washing-machines embrac-

ing similar elements to mine are not new, and therefore do not broadly claim them; but

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

In a washing-machine, the combination of the tub A, having serpentine or S shaped ribs *a a* with the revolving ribbed bottom C, hinged cover D, fluted stirrer E *e e*, operated by pinion *f* and segment F, and supported on brackets G H, all constructed and arranged for operation as shown and described.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

JONAS KIEHLE.

Witnesses:
S. H. PACKARD,
LANFEER KNAPP.

1682 (Part of Defendant's Exhibit 35.)

(U. S. Letters Patent No. 392,165 to J. Pratt & J. A. Parker, October 30, 1888.)

1634

(No Model.)

J. PRATT & J. A. PARKER.

CHchurn.

No. 392,165. Patented Oct. 30, 1888.

Fig. 1.

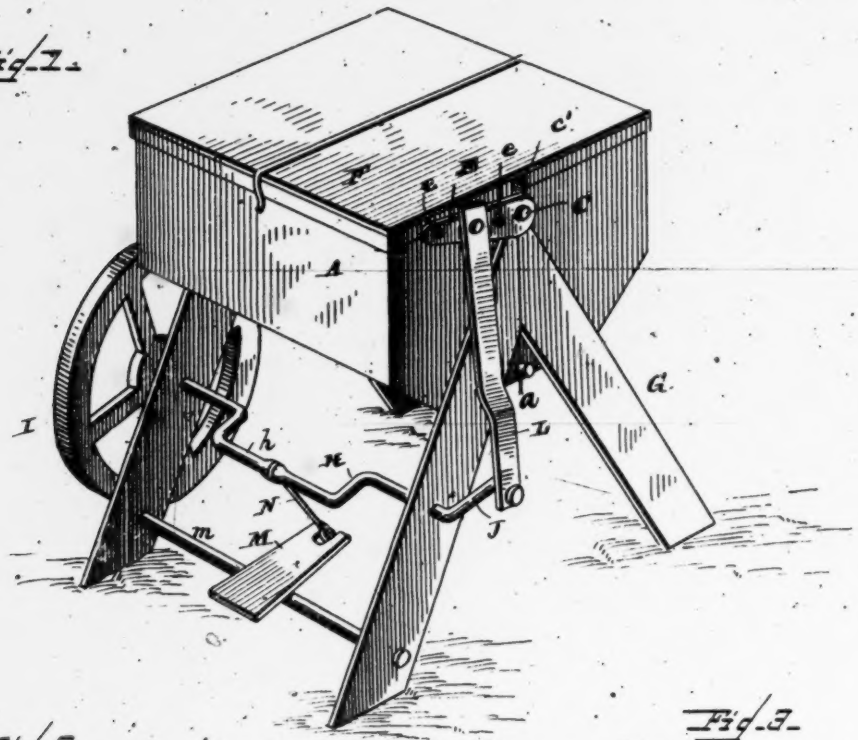


Fig. 2.

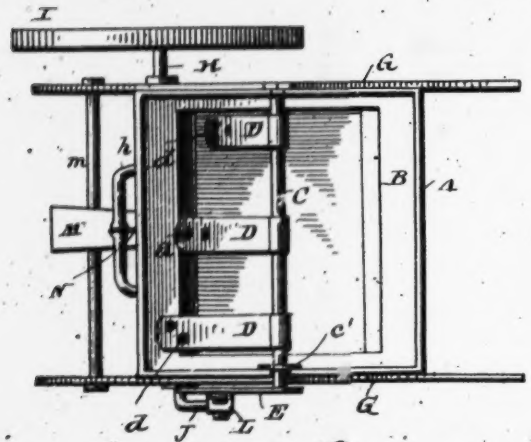


Fig. 3.

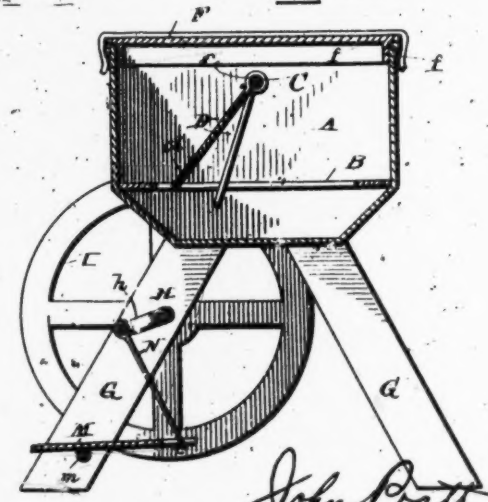
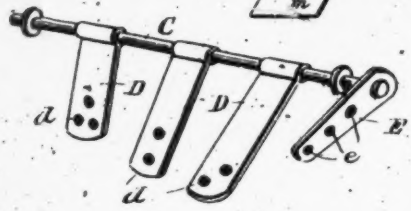


Fig. 4.



WITNESSES.

Edwin L. Yewell.

Wm. J. Littell,

John Pratt,

J. A. Parker,

INVENTORS.

by J. R. Littell,

Attorney.

UNITED STATES PATENT OFFICE.

JOHN PRATT, OF HARRISON, AND JOSEPH ALLEN PARKER, OF BUFFALO, PENNSYLVANIA.

CHURN.

SPECIFICATION forming part of Letters Patent No. 392,165, dated October 30, 1888.

Application filed June 16, 1888. Serial No. 277,340. (No model.)

To all whom it may concern:

Be it known that we, JOHN PRATT, of Harrison, in the county of Allegheny and State of Pennsylvania, and JOSEPH ALLEN PARKER, of Buffalo, in the county of Butler and State of Pennsylvania, citizens of the United States, have invented certain new and useful Improvements in Churns, of which the following is a specification.

This invention relates to churns adapted to be operated by hand or foot power, and its object is to provide a churn of this character possessing advantages in point of simplicity, inexpensiveness, durability of construction, ease of operation, and general efficiency.

In the drawings, Figure 1 is a perspective view of a churn embodying our invention. Fig. 2 is a top or plan view with the cover removed. Fig. 3 is a vertical sectional view. Fig. 4 is a detail perspective view of the dasher shaft and arms.

Corresponding parts in the figures are denoted by the same letters of reference.

Referring to the drawings, A designates the churn-body, which may be constructed of any suitable material or in any suitable form. The lower portion of the body is inwardly beveled, as shown, and upon the upper edge of this beveled portion rests a removable rectangular frame, B, adapted to prevent the contents of the churn from surging back and forth in a solid mass during the process of churning. An opening, *a*, is provided at the lower edge of the churn-body, through which the milk can be drawn off when desired.

C designates a removable dasher-shaft, having a bearing at one side of the churn in a recess, *c*, and at the opposite side in a vertical elongated slot, *c'*. The shaft C is provided with radial dasher-arms D, projecting therefrom at different angles, said arms being perforated at their ends, as shown at *d*. At the outer end of the shaft is secured an arm, E, at right angles thereto, provided with a series of perforations, *e*, the purpose of which will be hereinafter described.

The churn-body is provided with a cover, F, having a flange, *f*, at its edge adapted to fit tightly within the churn-body and close the portion of the slot *c'* not occupied by the dasher-shaft, thus entirely obviating leakage.

The churn-body is supported upon suitable legs, G, upon the front pair of which are provided bearings for a crank-shaft, H. To one end of this shaft is secured a fly-wheel, I, while the other end is provided with a crank-arm, J. The crank-arm J is connected with the arm E on the dasher-shaft by a pitman, L, which is connected with the arm E by a pin secured in one of the perforations *e*.

M designates a treadle secured to a shaft, *m*, having bearings at the lower ends of the front supporting-legs. The treadle is connected with a crank, *h*, on the shaft H by a pitman, N.

If desired, the churn may be operated by hand-power by providing a crank-arm (not shown) on the end of the dasher-shaft, in lieu of the foot-power mechanism herein shown.

The operation and advantages of our invention will be readily understood by those skilled in the art to which it appertains. After the churning has been completed the frame B and dasher-shaft can be removed and the milk drawn off through the opening *a*, thus leaving a smooth bowl in which the butter can be pressed.

By providing the arm E with the series of perforations the pitman L can be connected with any one of them, whereby the oscillation of the dasher-arms can be regulated.

We claim as our invention—

The herein-described churn, comprising the body having the inwardly-beveled lower portion provided with an open but continuous horizontal frame corresponding in shape to said body and resting upon the upper edge of the beveled portion, said frame being removable for the purpose set forth, in combination with a dasher-shaft disposed within the body above the frame and provided with radially-arranged dasher-arms which project through the said frame, and having an arm at its outer end and a pitman adjustably connected therewith at one end and at its other end with a crank-shaft, a treadle for operating the dasher-shaft, and a pitman connecting the crank-shaft and treadle, all arranged and adapted to operate substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN PRATT.

JOSEPH ALLEN PARKER.

Witnesses:

LOUIS SCHMETZ,

W. H. STEWART.

1684 (Part of Defendant's Exhibit 35.)

(U. S. Letters Patent No. 915,139 to J. Werner, March 16, 1909.)

1638

J. WERNER.

CREAM BREAKER AND MELTER.

APPLICATION FILED NOV. 30, 1907.

915,139.

Patented Mar. 16, 1909.

FIG. 1.

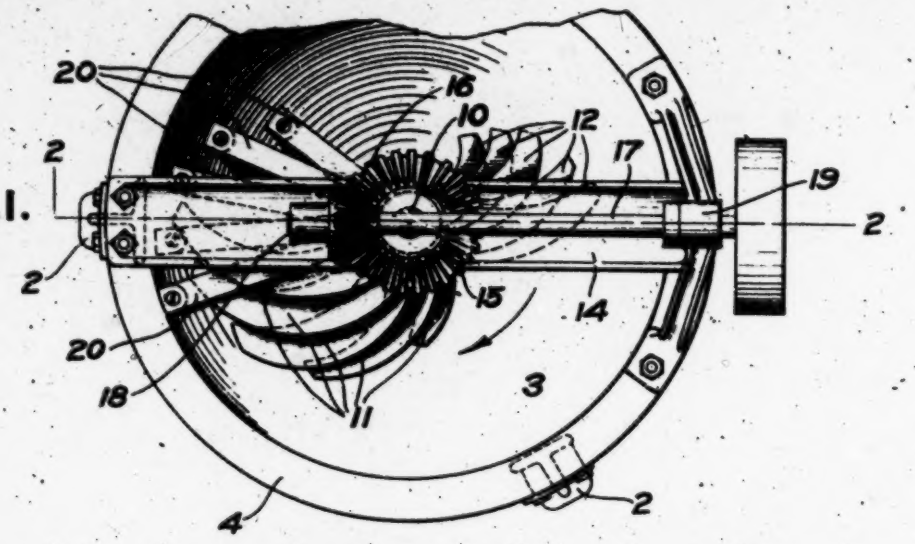
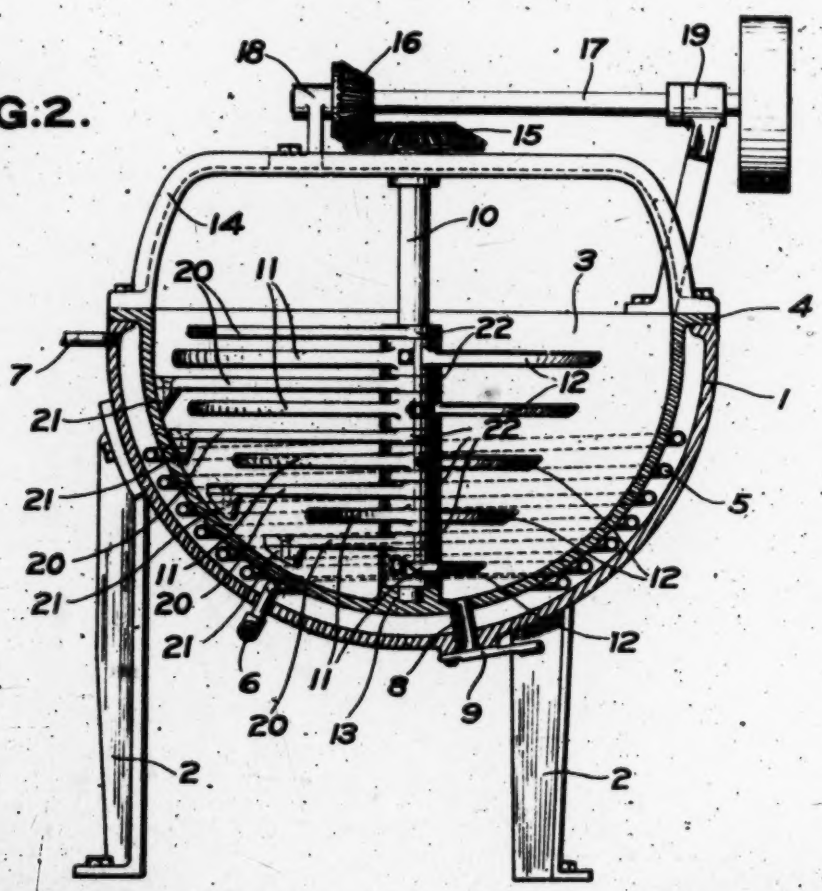


FIG. 2.



WITNESSES:

L. Flon

B. W. Carroll

INVENTOR:

John Werner

by Church & Davis

his attys

UNITED STATES PATENT OFFICE.

JOHN WERNER, OF ROCHESTER, NEW YORK.

1639

CREAM BREAKER AND MELTER.

No. 915,139. Specification of Letters Patent. Patented March 16, 1909.

Application filed November 30, 1907. Serial No. 404,633.

To all whom it may concern:

Be it known that I, JOHN WERNER, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Cream Breakers and Melters, of which the following is a specification.

This invention relates to cream breakers and melters, and consists in the construction and arrangement of the apparatus herein described and claimed.

The object of the invention is to provide an efficient apparatus for the purposes hereinafter set forth.

In the drawings: Figure 1 is a top plan view; and Fig. 2 is a section on the line 2—2 of Fig. 1.

The melter has an outer kettle 1, hemispherical in shape, and supported at a suitable height from the floor on legs 2. A smaller hemispherical kettle 3 rests within the kettle 1, and is bolted thereto through a flange 4. Packing is placed in the joint to make it steam-tight. In the space between the kettles 1 and 3 is a pipe coil 5. Steam is admitted to said coil at 6, and escapes from its upper end, condensing more or less rapidly upon the outer surface of the kettle 3, and the inner surface of the kettle 1. When the water thus formed rises to the top of the kettles, it may overflow through a pipe 7. This construction is therefore a jacketed kettle. The steam in the coil 5 maintains the water at its own temperature, and the cream candy placed in the inner kettle is melted by contact with the sides thereof. The melted cream may be drawn off through a pipe 8, located near the center of the bottom of the kettles, and closed at its outer end by a valve 9, such as a "molasses-gate".

The mechanism for breaking up large pieces of hardened or unmelted cream comprises a vertical shaft 10 in the center of the inner kettle 3, on which is fixed a series of collars, each having oppositely extending horizontal blades 11 and 12. The shaft 10 is revolubly supported in a bearing 13 at the bottom, and in a bearing in a frame 14 at the top. On its upper end is a bevel-gear 15, adapted to mesh with a gear 16. The gear 16 is fixed to a horizontal driven shaft 17, supported above the frame 14 in bearings 18 and 19, and usually carrying a driving pulley as shown.

The shaft 10 is rotated in the direction indicated by the arrow in Fig. 1. The blades 11 are so formed that they present a concave operating edge toward the direction of rotation, and the blades 12 are so formed that they present a convex operating edge thereto. The collars are set upon the shaft 10 in such a position that each pair of the blades 11 and 12 is slightly in advance of the pair beneath, (Fig. 1), and thus they may be called "spirally-stepped". The front edge of each blade, which is toward the direction of rotation, is beveled downward and backward from the top (see the blades 12, Fig. 2), so that as it comes in contact with the lumps of cream, the latter are not only broken up, but are also wedged downwardly toward the bottom of the kettle 3. To insure a finer division of the lumps of cream, a series of stops or abutments is placed in the kettle 3, and the blades 11 and 12 pass between the stops once during each revolution of the shaft 10, thus being cleared of large pieces which may adhere to them, and dividing said pieces into finer particles. The stops or abutments in the present instance are flat bars 20, each of which lies in a horizontal plane between the paths of rotation of two of the pairs of blades 11 and 12. The outer ends of the bars 20 are bolted to suitable lugs 21 on the inside of the kettle 3, and the inner ends are formed as collars 22, which lie between the collars, and fit loosely around the shaft 10. The bars 20 are not in alinement vertically, but each is somewhat in advance of the one next above it (Fig. 1). Said bars are thus relatively advanced or spirally stepped in a direction opposite to that of the blades 11 and 12. No more than one of said blades, therefore, can pass between two of the bars 20 at the same time; one blade is completely clear of the two bars between which it passes when the next blade beneath it approaches the bars lying adjacent to its plane of rotation. This spiral arrangement prevents the excessive strain on the driving mechanism which would occur if all the bars 20 and blades 11 and 12 were to pass each other at the same instant. The lumps of cream are thus broken up into comparatively small sizes, without requiring any great amount of power to operate the machine, and without undue strain upon any part. The effect of the concave knives 11 is to tend to move the lumps of cream inward toward the center of the kettle, and the convex knives 12 tend to

move the lumps outward, so that the lumps receive thorough treatment, and the mass is thoroughly mixed.

What I claim is:—

1. The combination of a melting kettle, a rotary shaft therein having oppositely directed spirally-stepped blades thereon, and a series of stationary stops coöperating with the whole length of the respective blades and between which the blades pass and which are spirally-stepped oppositely to the blades.

2. The combination of a melting kettle, a rotary shaft therein having two oppositely directed series of spirally-stepped blades thereon, one series having concave operating edges and the other series having convex operating edges, and a series of spirally-stepped stationary stops between which the blades pass.

3. The combination of a melting kettle, a rotary shaft therein having two oppositely directed series of spirally-stepped blades thereon, one series having concave operating edges and the other series having convex operating edges, and a series of stationary stops between which the blades pass and which are spirally-stepped oppositely to the blades.

4. The combination of a melting kettle, a rotary shaft therein having two series of spirally-arranged and oppositely directed blades thereon, each pair of blades being slightly in advance of the next pair, and a series of spirally-arranged stationary stops between which the blades pass and in which each stop is in advance of the next one.

5. The combination of a melting kettle, a rotary shaft therein having two series of spirally-arranged and oppositely directed blades thereon, each pair of blades being slightly in advance of the next pair, one series having concave operating edges and the other series having convex operating edges, and a series of spirally-arranged stationary stops between which the blades pass and in which each stop is in advance of the next one.

6. The combination of a melting kettle, a rotary shaft therein having two oppositely directed series of spirally-arranged blades thereon, one series having concave operating edges and the other series having convex operating edges, and a series of stationary stops between which the blades pass.

7. The combination of a melting kettle, a rotary shaft therein having two oppositely directed series of spirally-arranged blades thereon, one series having concave operating edges and the other series having convex operating edges, and a series of stationary stepped stops between which the blades pass.

8. The combination of a melting kettle, a rotary shaft therein having two oppositely directed series of spirally-stepped blades thereon, one series being long and having concave operating edges and the other series being short and having convex operating edges, collars on the shaft, and a series of stops between which the blades pass extending from the collars to the periphery of the kettle.

9. The combination of a melting kettle, a rotary shaft therein having two oppositely directed series of spirally-stepped blades thereon, one series being long and having concave operating edges and the other series being short and having convex operating edges, and a series of stops between which the blades pass extending from the shaft to the periphery of the kettle.

10. The combination of a melting kettle, a rotary shaft therein having two oppositely directed series of spirally-stepped blades thereon, one series being long and having concave operating edges and the other series being short and having convex operating edges, collars on the shaft, and a series of spirally-arranged stops between which the blades pass extending from the collars to the periphery of the kettle.

11. The combination of a melting kettle, a rotary shaft therein having two oppositely directed series of spirally-stepped blades thereon, one series being long and having concave operating edges and the other series being short and having convex operating edges, and a series of spirally-arranged stops between which the blades pass extending from the shaft to the periphery of the kettle.

JOHN WERNER.

Witnesses:
D. Guanee,
L. Thon.

* * * * * * * *

1687 (Part of Defendant's Exhibit 35)

Letters Patent No. 1,118,210 to F. A. & S. W. Mills, dated November 24, 1914.

A copy of the Letters Patent No. 1,118,210 to F. A. & S. W. Mills dated November 24, 1914, was made a part of the transcript at this place, but is omitted from the printed record for the reason that a copy of said Letters Patent heretofore appears in this printed record as a part of Defendant's Exhibit 13 on page 1097 of the printed record.

1696 (Part of Defendant's Exhibit 35.)

(U. S. Letters Patent No. 1,131,466 to P. T. Coffield & J. Bremer, March 9, 1915.)

1642

P. T. COFFIELD & J. BREMER.

DRIVING MECHANISM.

APPLICATION FILED APR. 29, 1911.

1,131,466.

Patented Mar. 9, 1915.

2 SHEETS—SHEET 1.

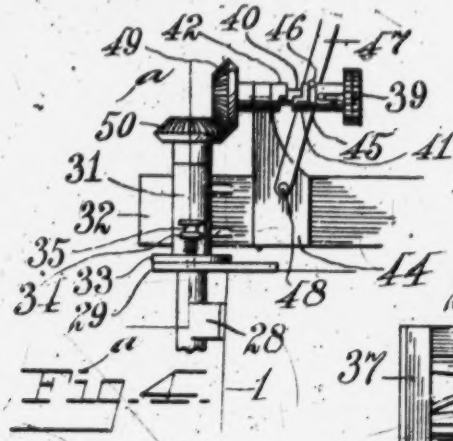


Fig. 4.

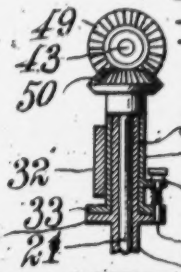


Fig. 5.

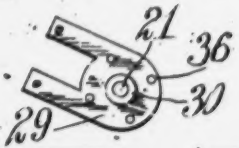


Fig. 6.

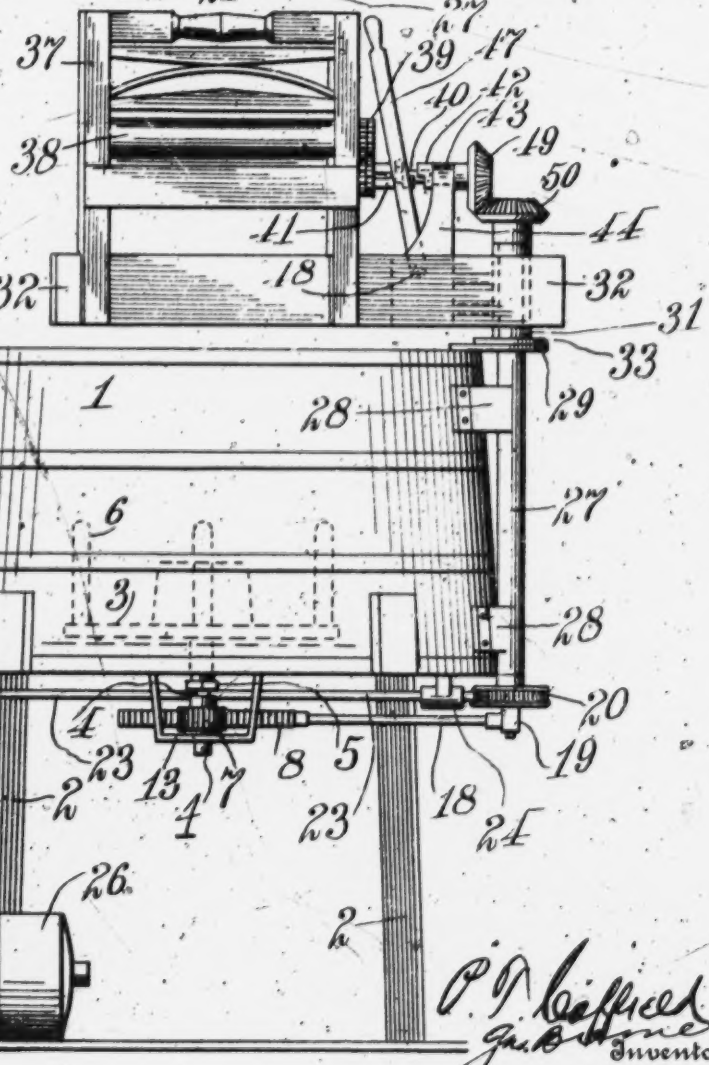


Fig. 1.

Inventors.

Witnesses

Attorney

1644

P. T. COFFIELD & J. BREMER.

DRIVING MECHANISM.

APPLICATION FILED APR. 26, 1911.

1,131,466.

Patented Mar. 9, 1915.

2 SHEETS—SHEET 2.

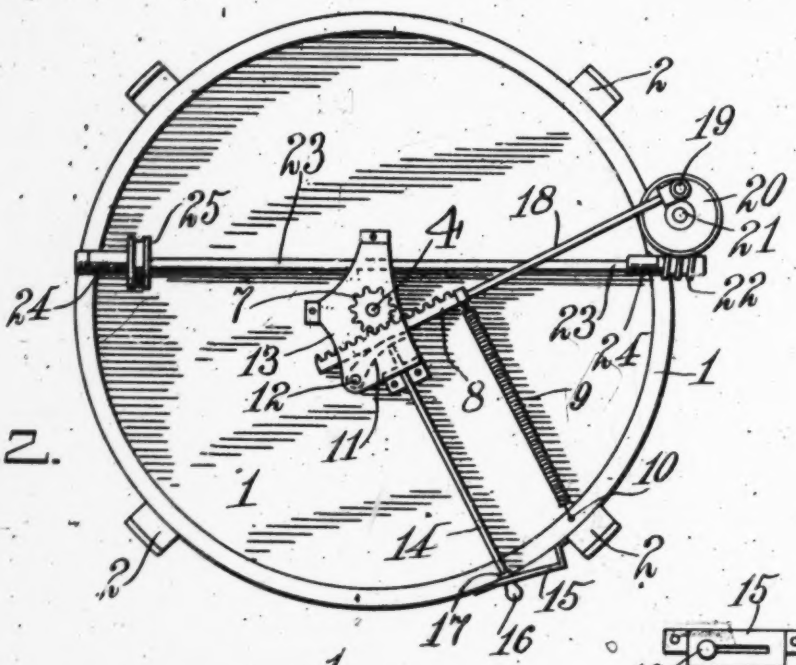


Fig. 2.

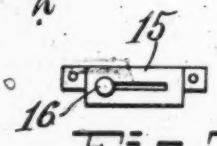


Fig. 7.

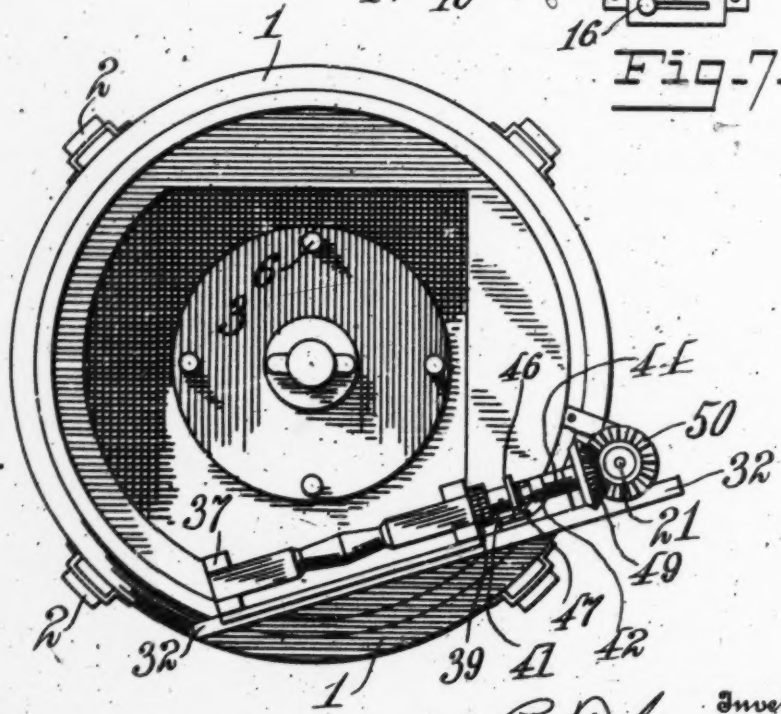


Fig. 3.

Witnesses

M. Sieker

H. A. Smith

Inventors

P. T. Coffield

Jno. Bremer

By R. J. McCarty

Chas

Attorney

UNITED STATES PATENT OFFICE.

PETER T. COFFIELD, OF DAYTON, AND JOHN BREMER, OF CINCINNATI, OHIO, ASSIGNORS, BY MESNE ASSIGNMENTS, TO MAYTAG COMPANY, OF NEWTON, IOWA, A CORPORATION.

DRIVING MECHANISM.

1,131,466. Specification of Letters Patent. Patented Mar. 9, 1915.

Application filed April 29, 1911. Serial No. 624,181.

To all whom it may concern:

Be it known that we, PETER T. COFFIELD and JOHN BREMER, citizens of the United States, residing at Dayton and Cincinnati, in the counties of Montgomery and Hamilton, respectively, and State of Ohio, have invented certain new and useful Improvements in Driving Mechanism; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in driving mechanism for washing machines.

The object of the invention is to provide such mechanism whereby the operations of washing and wringing the clothes may take place simultaneously. To the above end, the clothes may be wrung from the tub in which they are washed directly, or the wringer may operate on previously washed clothes while other clothes are being washed, the wringer being adjustable or movable to various positions relative to the tub.

Referring to the accompanying drawings, Figure 1 is an elevation of a laundry installation constructed and arranged according to our invention. Fig. 2 is a bottom plan view of the same; Fig. 3 is a top plan view of the same; Fig. 4 is a detail view of a portion of the wringer gearing; Fig. 5 is a section on the line *a a* of Fig. 4, showing the wringer swivel and gearing; Fig. 6 is a detail plan view of the locking plate instrumental in holding the wringer in its various positions; and Fig. 7 is a view of the slotted plate instrumental in controlling the gearing between the motor and the wash tub.

Throughout the specification and drawings, similar reference characters indicate corresponding parts.

Referring more particularly to the drawings, 1 represents a wash tub of any preferred type which is supported on legs 2. Within said tub, and at the bottom thereof, is a dolly wheel or agitator 3 mounted on a vertical shaft 4 extending down through the bottom of said tub and through a stuffing box 5. The said dolly wheel 3 is provided with pins 6 which extend upwardly in the tub and engage the clothes within said tub to agitate the same during the oscillation of the dolly wheel. The said dolly wheel is oscillated by means of a pinion 7 mounted on the lower end of the shaft 4 and engaged by a reciprocating power-driven rack 8. Attached to the rack 8 is one end of a spring 9, the other end of which is attached at 10 to the tub 1 or other convenient point, Fig. 2. The said spring acts to disengage the rack 8 and pinion 7. The member 11 pivoted at 12, is held against the rack 8 by a reciprocating rod 14. The inner end of the rod 14 engages the member 11, while the outer end is mounted in a slotted plate 15. The said outer end of the rod 14 is provided with a finger piece 16 by which it is manipulated, and a collar 17 which lies on the inner side of said plate 15. When said rod is reciprocated in the slot in plate 15, the inner end will reciprocate the member 11, thereby permitting the pinion and rack to engage when the rod is in one position, and to disengage under the influence of the spring 9 when said rod is in the other position. A frame 13 is provided which serves as a support for the pivot 12 of the member 11, a bearing for the dolly wheel shaft 4, and a guide for the rod 14. The rack 8 is attached to one end of a connecting rod 18, the other end of which is pivoted to a crank pin 19 on a worm gear 20. The said gear 20 is mounted on a vertical shaft 21 (driven from the motor) and is in engagement with a worm 22 on a horizontal shaft 23 journaled in bearings 24 attached to the bottom of the tub. The shaft 23 is provided with a pulley 25 connected with a motor 26, preferably of the electric type, by a belt 27. The said motor 26 reciprocates the rack 8, and the extreme high speed of said motor is reduced to a comparatively low speed by the worm gearing 22 and 21. When the rack 8 is placed in engagement with the pinion 7, by the rod 14, the dolly wheel 3 will be oscillated by the rack 8.

Having described the particular driving connections between the motor and the dolly wheel of the tub, we will next describe the construction of the wringer.

The vertical shaft 21 is journaled in an upright elongated bearing 27 supported on

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the side of the tub by brackets 28. The upper end of the bearing 27 terminates in a locking flange or plate 29 and a tubular stem 30. Pivotally mounted on said stem 30 is a sleeve 31 to which is attached a wringer board 32. The sleeve 31 is provided with a flange or plate 33 which coincides with the plate 29, and together they form a turntable. The said sleeve 31 is also provided with a projection 34 which receives a spring-controlled pin 35. The lower end of the pin 35 passes through an aperture in the plate 33 and is adapted to enter any one of a series of apertures 36 in the plate 29. The wringer board 32 and therewith the wringer, may thus be swung around the stem 30 to various positions in which they may be locked by the pin 35 and openings 36.

Mounted on the swinging supporting board 32 is the wringer 37 of any well known type and which is provided with upper and lower rollers 38 moving in unison through the medium of gears 39. The shaft 40 of the lower roller is provided with a clutch member 41 splined thereto and adapted to be placed in engagement with a similar clutch member 42, see Fig. 4. The clutch member 42 is mounted on a short shaft 43 journaled in a bearing 44 extending from the wringer board 32. The clutch member 41 is provided with a groove 45 which receives a pin 46 on a lever 47 pivoted at 48 to the wringer board. When the lever 47 is oscillated, the clutch member 41 will be thrown into and out of engagement with the clutch member 42, and thus the operation of the wringer controlled. Mounted on the short shaft 43 is a bevel gear 49 in mesh with a similar gear 50 on the upper end of the shaft 21. The shaft 21 is driven from the motor 26 through the belt 27, shaft 23 and gears 20 and 22, as before described.

The rollers 38 of the wringer are driven from the shaft 21 through the miter gears 49 and 50, and clutch members 41 and 42 when said clutch members are placed in engagement with each other by the lever 47. The wringer as before stated, may be swung around upon the stem 30 to various positions to wring the clothes from one tub into another, and said wringer may be locked in its position by the pin 35 before referred to.

From the foregoing description it will be seen that the washing machine and wringer may be operated from the same source of power and each operated independently or simultaneously as desired, thus enabling the washing to be done in the washer while the wringer is wringing through the rinse waters the clothes that have previously passed through the washer.

Having described our invention, we claim:

1. In a machine of the class described, a support, a vertical shaft thereon, means to drive said vertical shaft, a frame adapted to swing about said vertical shaft in a horizontal plane, a pair of adjacent roller shafts arranged one above the other supported in said frame, driving means whereby said roller shafts may be driven in any position of the support relative to the vertical shaft.

2. In a machine of the class described, a support, a vertical shaft thereon, a frame adapted to swing about said vertical shaft on an axis, a pair of parallel adjacent roller shafts geared together for rotation in opposite directions and arranged horizontally in said frame, provided with means whereby said roller shafts may be driven in any position of the support relative to said vertical shaft and means to lock said frame in adjusted position about said vertical shaft.

3. In a mechanism of the class described, the combination of a suitable support, a frame having bearings at each end, two parallel roller shafts mounted in said bearings and movable with said frame, said frame being mounted to swing bodily in a horizontal frame, a pinion on one of said parallel shafts, a vertical shaft carried by said support in vertical alinement with the pivotal axis of said horizontally swinging frame, a pinion arranged on said vertical shaft to mesh permanently with said first mentioned pinion which rolls around said second pinion when said frame is swung horizontally, and a motor mounted on said support for actuating said vertical shaft.

4. In a mechanism of the class described, the combination of a suitable support, a pair of horizontal roller shafts geared together and mounted on said support said shafts being adapted to swing in a horizontal plane, a pinion for one of said shafts, a vertical shaft carried by said support in vertical alinement with the pivotal axis of said horizontally swinging shafts, a pinion arranged on said vertical shaft to mesh permanently with said first mentioned pinion which rolls around said second pinion when the horizontal shaft is swung about its vertical pivot, a motor driven shaft mounted on said support, and a driving connection between said motor driven shaft and said vertical shaft.

5. In a mechanism of the class described, the combination of a support, a vertical shaft carried by said support, a pinion on said vertical shaft, a bracket mounted to swing about said vertical shaft as an axis, a frame supported by said bracket and having bearings, two parallel roller shafts carried by said frame and geared together, a pinion on the end of one of said roller shafts, said pinion meshing with the pinion of said vertical shaft and being adapted to roll around said last named pinion when said frame is swung around its vertical axis, means for securing said bracket after it has

been swung to a new position, a motor below said support, and driving connections between said motor and said vertical shaft.

6. In a mechanism of the class described, the combination of a support, a vertical shaft carried by said support, a pinion on said vertical shaft, a bracket mounted to swing about said vertical shaft as an axis, a frame supported by said bracket and having bearings, two parallel contiguous roller shafts carried by said frame and geared together for rotation in opposite directions, a gear connection between said vertical shaft and one of said roller shafts which connection remains operative when said frame is swung about its vertical axis, and means for securing said bracket after it has been swung to a new position.

7. In a mechanism of the class described, the combination of a suitable support, a pair of horizontal roller shafts geared together for rotation in opposite directions and adapted to swing in a horizontal plane, a vertical shaft carried by said support in vertical alinement with the pivotal axis of said horizontally swinging shafts, a gear connection permitting said horizontal shafts to swing about their vertical pivot while driving connection is maintained to said roller shafts, a driving shaft mounted on said support, and a driving connection between said driving shaft and said vertical shaft.

8. In a mechanism of the class described, the combination of a pair of horizontal roller shafts, resilient means for holding said roller shafts in operative position relative to one another, a frame supporting said roller shafts and movable outward from one location to a second location, driving gears for said roller shafts, a power shaft and driving connections for propelling said gears from said power shaft, said gears and connections being operative to drive said roller shafts when said frame is in either of the two locations.

9. In a machine of the class described, a support, a vertical shaft thereon, means to drive said vertical shaft, a frame adapted to swing about said vertical shaft in a horizontal plane, a pair of parallel adjacent roller shafts geared together and arranged horizontally one above the other in said frame, driving means whereby said roller shafts may be driven in any position of the support relative to said vertical shaft.

10. In a machine of the class described, a support, a vertical shaft thereon, means to drive said vertical shaft, a frame adapted to swing about said vertical shaft in a horizontal plane, a pair of parallel adjacent roller shafts geared together for rotation in opposite directions and arranged horizontally in said frame, driving means whereby said roller shafts may be driven in a plurality of positions of the support relative to said vertical shaft, and means to lock said frame in adjusted position about said vertical shaft.

11. In a machine of the class described, the combination of a support, a frame mounted to swing bodily in a horizontal contiguous plane relatively to the support, horizontal roller shafts geared together for rotation in opposite directions and mounted in said frame, a motor and driving connection between said motor and said roller shafts adapted to drive the roller shafts irrespective of the position of said frame relative to said roller shafts, and manually operated means for interrupting said driving connections.

In testimony whereof I affix my signature, in presence of two witnesses.

PETER T. COFFIELD.

Witnesses:
R. J. McCarty,
Howard S. Smith.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN BREMER.

Witnesses:
Henry Schroeder,
W. Meredith Yeatman.

Certificate of Correction—Letters Patent No. 1,131,466.

It is hereby certified that in Letters Patent No. 1,131,466, granted March 9, 1915, upon the application of Peter T. Coffield, of Dayton, and John Bremer, of Cincinnati, Ohio, for an improvement in "Driving Mechanism," an error appears in the printed specification requiring correction as follows: Page 2, line 90, for the word "frame" read *plane;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

rrection in Letters Patent No. 1,131,466.

It is hereby certified that in Letters Patent No. 1,131,466, granted March 9, 1915, upon the application of Peter T. Coffield, of Dayton, and John Bremer, of Cincinnati, Ohio, for an improvement in "Driving Mechanism," an error appears in the printed specification requiring correction as follows: Page 2, line 90, for the word "frame" read *plane;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of May, A. D., 1915.

[SEAL.]

R. F. WHITEHEAD,

Acting Commissioner of Patents.

* * * * * * * *

1701 (Part of Defendant's Exhibit 35.)

Letters Patent No. 1,240,826 to G. L. Davis, dated September 25, 1917.

A copy of the Letters Patent No. 1,240,826 to G. L. Davis dated September 25, 1917, was made a part of the transcript at this place, but is omitted from the printed record for the reason that a copy of said Letters Patent heretofore appears in this printed record as a part of Defendant's Exhibit 13 on page 1055 of the printed record.

1704 (Part of Defendant's Exhibit 35.)

(U. S. Letters Patent No. 1,259,939 to W. R. Walker, March 19, 1918.)

1649

1650

W. R. WALKER.

DISH WASHER.

APPLICATION FILED JUNE 29, 1914.

1,259,939.

Patented Mar. 19, 1918.

2 SHEETS—SHEET 1.

FIG. 1.

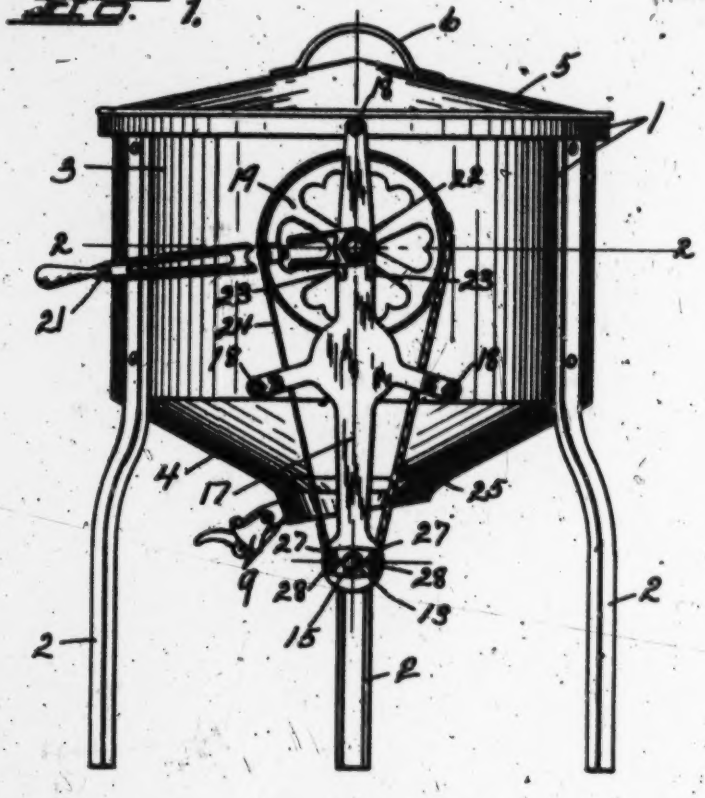
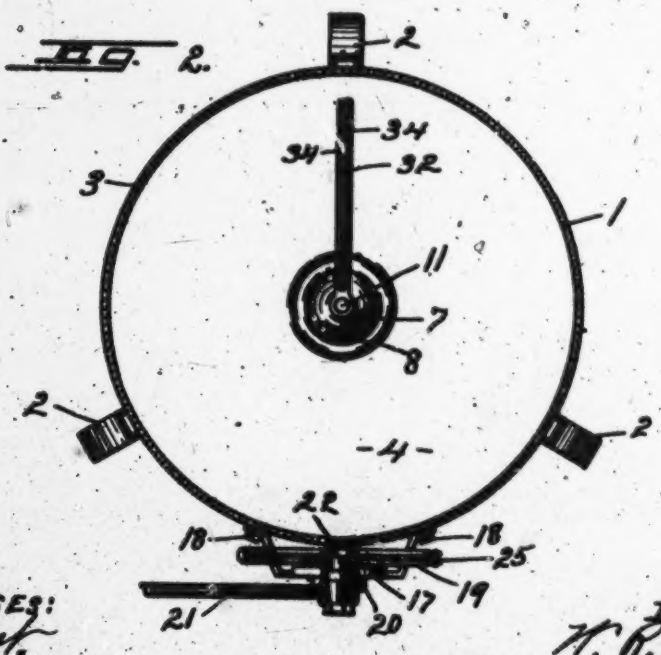


FIG. 2.



WITNESSES:

H. Whitney

H. E. Chase

INVENTOR

W. R. Walker

BY Howard P. Denison

ATTORNEY.

0561

1652

W. R. WALKER.

DISH WASHER.

APPLICATION FILED JUNE 29, 1914.

1,259,939.

Patented Mar. 19, 1918.

2 SHEETS—SHEET 2.

FIG. 3.

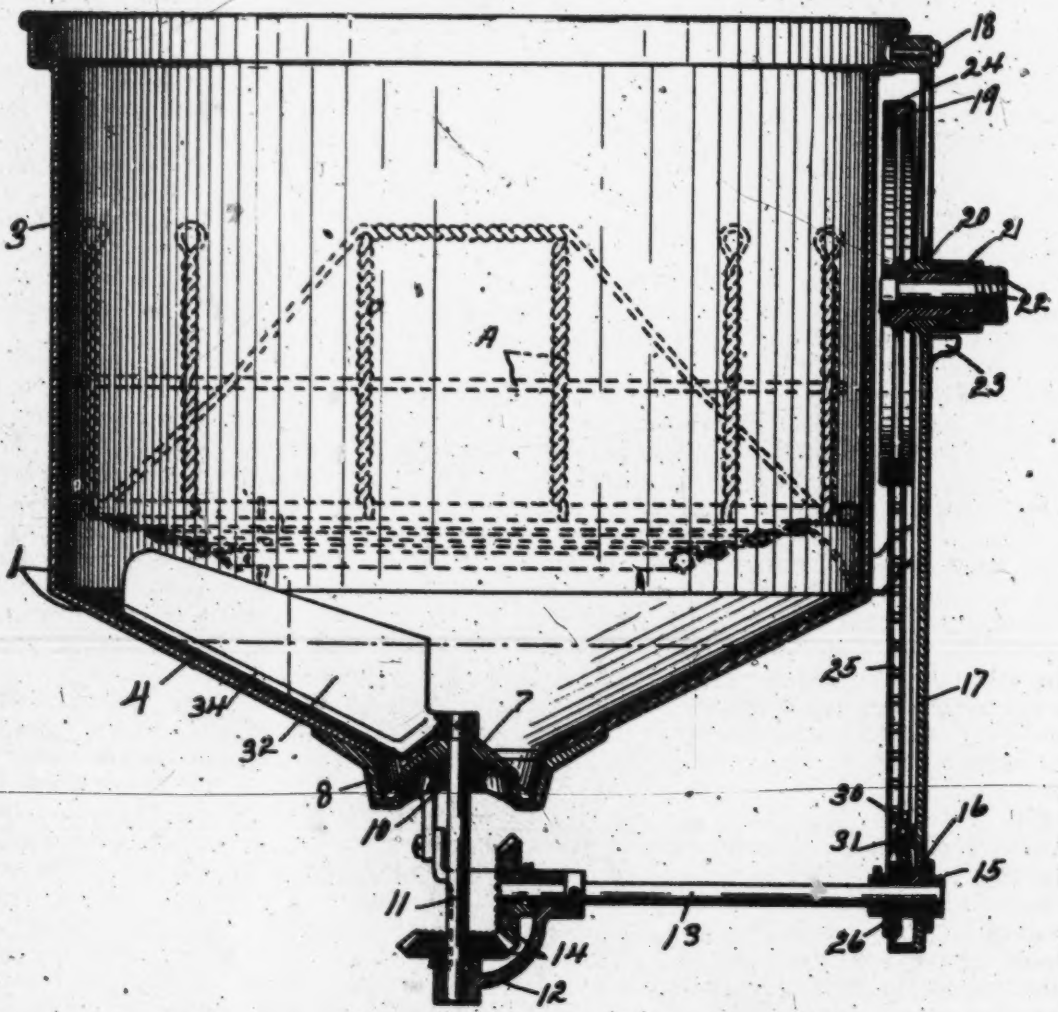


FIG. 4.

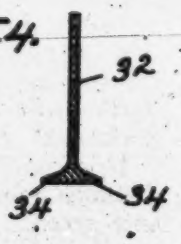
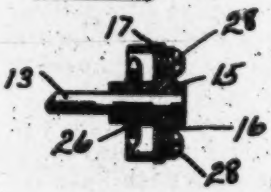


FIG. 5



WITNESSES:

H. Hurst.

K. E. Chase

INVENTOR

W. R. Walker

BY Howard P. Denison

ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLARD R. WALKER, OF SYRACUSE, NEW YORK.

DISH-WASHER.

1,259,939. Specification of Letters Patent. Patented Mar. 19, 1918.

Application filed June 29, 1914. Serial No. 847,965.

To all whom it may concern:

Be it known that I, WILLARD R. WALKER, a citizen of the United States of America, and a resident of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Dish-Washers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in mechanical dish washers of the class set forth in my pending applications Nos. 749,133 (filed February 18, 1913), 776,678 (filed June 30, 1913) and 811,720 (filed January 12, 1914) except that it refers more particularly to a hand-operated rotary dasher adapted to be revolved in reverse directions one or more revolutions at a time.

The main object is to impart to a relatively shallow body of water an upward whirling centrifugal motion and to suddenly reverse this motion so as to obtain a maximum and more or less irregular splash of the water between and across the dishes or other utensils which are usually carried by open-work baskets or trays similar to those shown in my pending application No. 776,678.

Another object is to construct and associate the bottom of the vat and dasher-blade in such manner as to cause an upward splashing of the water through the dish-supporting trays or baskets and to the top of the vat as the dasher-blade is rotated in either direction.

Another object is to impart to the dasher a relatively high speed of rotation through one or more complete revolutions by the movement of the operating member through a comparatively short arc.

A still further object is to make the portion of the dasher-blade nearest its axis of rotation of greater vertical width or height than its outer end so as to act upon a relatively larger volume of water in displacing it from the center outwardly under centrifugal force, thus permitting the use of a comparatively shallow body of water in the apex of the cone bottom with the assurance that it will be agitated and distributed throughout the whole interior capacity of the tank with the employment of a comparatively low degree of power.

Other objects and uses relating to specific parts of the machine will be brought out in the following description.

In the drawings—

Figure 1 is a side elevation of a mechanical dish washer embodying the various features of my invention.

Fig. 2 is a horizontal sectional view through the vat taken on line 2—2, Fig. 1.

Fig. 3 is an enlarged longitudinal vertical sectional view of the upper portion of the machine omitting the supporting legs.

Fig. 4 is an enlarged detail sectional view of the dasher-blade.

Fig. 5 is a horizontal sectional view through the outer end of the bracket carrying the counter-shaft, showing more particularly the adjustable bearing for said shaft.

This machine comprises a covered vat or tank —1— having supporting legs —2— in the form of a tripod and consisting of a cylindrical main body —3— having an inverted cone bottom —4— and a conical top or cover —5— which, in this instance, is removable and for this purpose is provided with a handle —6—.

The apex of the cone bottom —4— is truncated and provided with a raised cone center —7— and a depressed annular channel —8— surrounding the raised center —7—, the bottom of the channel —8— being inclined from one side toward the diametrically opposite side where it is provided with a suitable outlet or drainage faucet —9— of the gate-type.

The raised center —7— of the bottom —4— is provided with a gland —10— forming an upper bearing for an upright shaft —11— having its lower end journaled in a bracket —12— which is secured to and depends from the bottom of the vat.

This bracket —12— also forms a support for the inner end of a horizontal counter-shaft —13— which is geared to the upright shaft —11— by bevel-gears —14—.

This counter-shaft —13— is located some distance below the bottom of the vat —1— and extends radially relatively thereto, its outer end being journaled in a bearing —15— which is adjustably mounted in a vertically elongated opening —16— in the lower end of an upright bracket —17—, the latter being secured by bolts —18— to the adjacent side of the vat —1—.

A relatively large band-wheel —19— is journaled in a bearing —20— on the upright bracket —17— between said bracket

and the adjacent side of the vat, the hub of the wheel —19— being extended outwardly some distance beyond the outer face of the bracket —17— and is tapered for receiving an operating handle or lever —21— which is tightly fitted upon the tapered portion of the hub and is held in operative position by a suitable clamping bolt —22—.

The arc of movement of the lever —21— and wheel —19— is limited to approximately a half circle by means of stop shoulders —23— on the bracket —17— just below the hub of the lever as shown more clearly in Figs. 1 and 3.

This wheel —19— is connected by a strap —24— and chain —25— to a relatively smaller sprocket wheel —26— on the outer end of the counter-shaft —13—, the ratio of the wheels —19— and —26— being, in this instance approximately five to one, so that the movement of the lever —21— through an arc of 180° will revolve the shaft —11— and dasher-blade secured thereto approximately two and one-half complete revolutions or more than a complete revolution at each movement of the lever through an arc of a quarter of a circle.

The lever is shown in its normal position in Fig. 1 and when in that position, the strap —24— extends around the upper half of the wheel —19— while the chain extends around the lower half of the sprocket wheel —26—, thereby avoiding the necessity of cutting sprocket teeth on the larger wheels and permitting the use of a relatively short length of chain in effecting a positive drive of the counter-shaft —13— and dasher-supporting shaft —11— in reverse directions.

The bearing —15— is provided with slotted bolt holes —27— for receiving clamping bolts —28— by which the bearing may be adjusted vertically and held in its adjusted position, this adjustment being effected by means of a set screw —30— which is engaged in an apertured lug —31— on the inner side of the bracket —17— as shown more clearly in Fig. 3, the object of this adjustment being to tighten the belt or release it for removal if necessary.

A dasher-blade —32— is secured to the upper end of the upright shaft —11— within the vat —1— and close to the bottom thereof and is preferably arranged edgewise vertically relatively to said bottom so as to extend radially from the shaft —11— across the channel —8— and upwardly along the inclined bottom a distance greater than one-half the radius of said bottom so as to act upon the entire body of washing fluid which may be placed in the bottom of the vat.

The lower edge of the blade —32— is provided with laterally flaring flanges —34— projecting equal distances from the center of the main body and of substantially the same flare so as to effect an upward movement of the water as the blade is rotated in reverse directions, the lower edge of said blade being inclined upwardly and laterally at the same angle as the bottom of the vat in close proximity thereto, leaving just sufficient clearance to avoid friction with said bottom.

The inner ends of these flanges —34— at the inner sides of the channel —8— are deflected upwardly to conform to the upper face of the conical center portion —7— and at the same time operate to assist in forcing the washing fluid at the center radially and outwardly and also upwardly.

The inner end of the blade —32— is of greater vertical height than its outer end so as to act more effectively upon the relatively deep body of water at the center to force the same outwardly as the blade is rotated, it being understood that the body of water usually employed, and indicated by the dotted lines in Fig. 3, is relatively shallow so that its normal level is some distance below the upper edge of the outer end of the blade.

It is now clear that when the blade is rotated at the relatively high speed intended, the upward inclination of the bottom of the tank and blade, together with the flaring wings or flanges —34— at the bottom of said blade will impart to the water an upward whirling movement of sufficient force to reach the top of the vat, thereby passing between and across any plates which may be held edgewise in the basket as —A— and returning by its own gravity between and across the dishes to the bottom of the tank.

It is also evident that if the direction of movement of the blade is suddenly reversed after the water has been impelled under a whirling motion, the sudden stoppage of such whirling motion will cause the water to splash higher and with greater force between and across the dishes which may be held in the trays and, after repeating this movement a few times, the dishes will be thoroughly freed from accumulations, it being understood that the first cleansing fluid contains more or less soap or other grease solvent and that after the first cleansing, this fluid may be drawn off and a similar quantity of clean hot or cold water may be introduced and agitated in the manner described to finally cleanse the dishes which, when the agitation ceases, are left in the trays to dry, the body of water being below the trays.

What I claim is:

In a mechanical dish washer, the combination of a vat having the central portion of its bottom provided with an annular channel and a raised conical portion surrounded by said channel, an upright shaft journaled in the apex of said raised portion,

an impeller blade secured to said shaft within the vat and having its lower edge provided with oppositely projecting flanges traveling close to the bottom of the vat and having their ends nearest the center inclined upwardly along the incline of the central conical portion of the bottom.

In witness whereof I have hereunto set my hand this 27th day of June, 1914.

WILLARD R. WALKER.

Witnesses:
H. E. CHASE,
EVA E. GREENLEAF.

1709 (Part of Defendant's Exhibit 35.)

(U. S. Letters Patent No. 1,276,254 to N. D. Nielsen, August 20, 1918.)

1658.

N. D. NIELSEN.

MIXING OR STIRRING MEANS.

APPLICATION FILED MAR. 22, 1918.

1,276,254.

Patented Aug. 20, 1918.

2 SHEETS—SHEET 1.

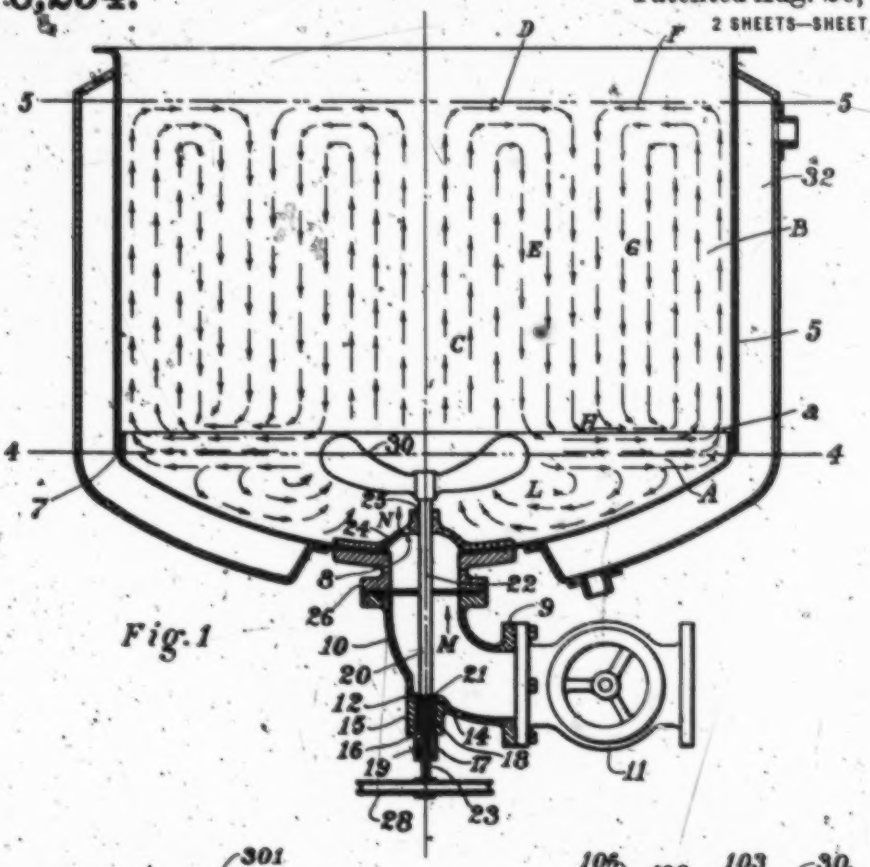


Fig. 1

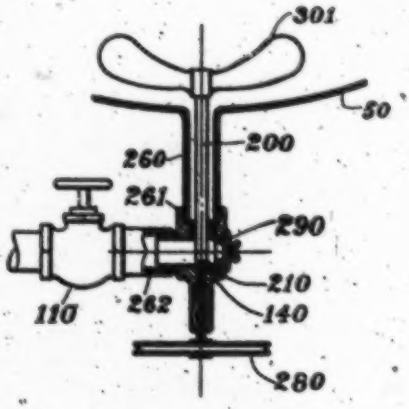


Fig. 2

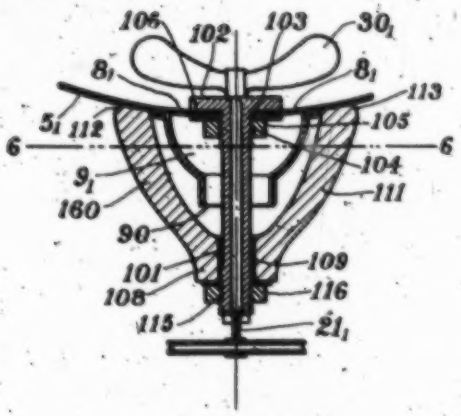


Fig. 3

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HIS ATTORNEY

1660

N. D. NIELSEN.

MIXING OR STIRRING MEANS.

APPLICATION FILED MAR. 22, 1918.

1,276,254.

Patented Aug. 20, 1918

2 SHEETS—SHEET 2.

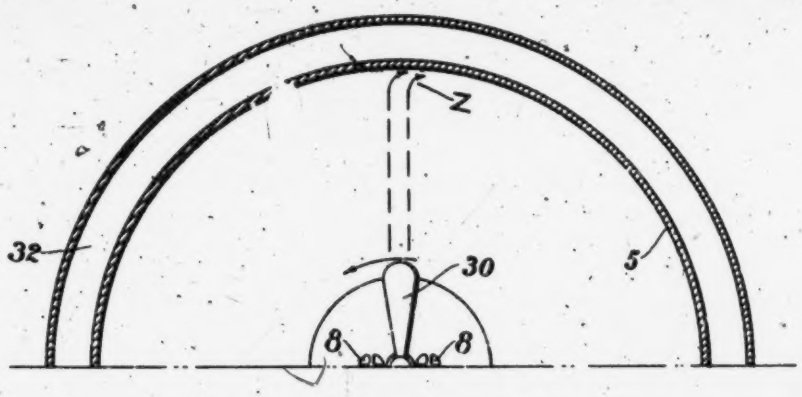

Fig. 4

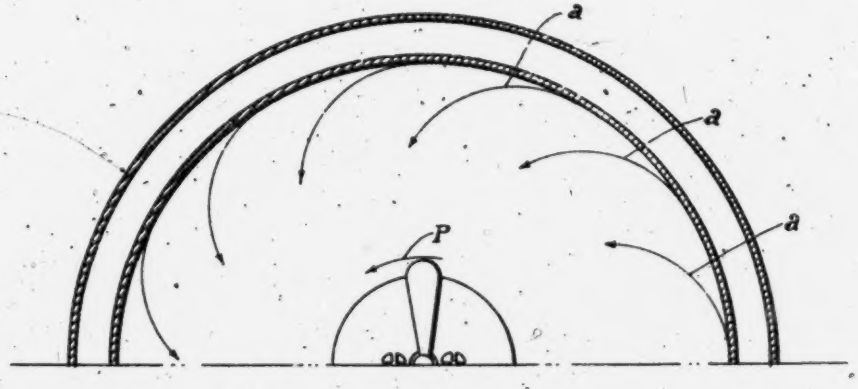

Fig. 5

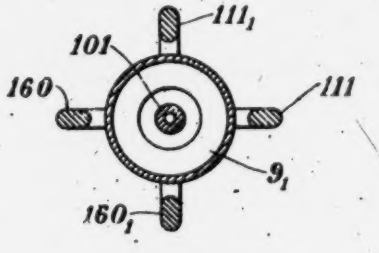

Fig. 6

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INVENTOR.

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ATTORNEY

UNITED STATES PATENT OFFICE.

NIELS D. NIELSEN, OF ELYRIA, OHIO.

MIXING OR STIRRING MEANS.

1,276,254. Specification of Letters Patent. Patented Aug. 20, 1918.

Application filed March 22, 1918. Serial No. 223,906.

To all whom it may concern:

Be it known that I, NIELS D. NIELSEN, a citizen of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Mixing or Stirring Means; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to means for mixing or stirring liquids of various kinds, or liquids and solids or semi-solids.

I aim to thoroughly agitate or mix the liquid, etc., in a vessel, and to expose the mass thereof to mediums for heating, cooling or the like.

I also aim to produce apparatus which is simple and easy to make, install and operate.

I also aim to prevent any eddies in the mass of liquid in the tank, and to forcibly subject all parts of the liquid to the mixing and such medium or mediums as I have mentioned.

I also aim to produce apparatus which can be easily removed from one vessel and installed upon another.

These and other objects of my invention and the invention itself will be further explained in connection with the illustration and description of particular embodiments thereof.

Figure 1 is a cross section through an embodiment of my invention showing the parts assembled.

Fig. 2 is a similar view through a second embodiment of my invention, omitting the walls and most of the bottom of the tank.

Fig. 3 is a view, similar to the view in Fig. 2, of a third embodiment of the invention.

Fig. 4 is a half section through the line 4—4 of Fig. 1.

Fig. 5 is a top plan view of a half section of Fig. 1 when the propeller is rotating in the direction of the arrow P.

Fig. 6 is a section along the line 6—6 of Fig. 3.

Referring now to the drawings and to the embodiments of the invention shown therein, at 5 is shown a tank, here illustrated as having cylindrical side walls. The bottom of the tank is so constructed that the liquid, etc. cast against it is deflected away. The best results are secured by inclining this part of the tank downwardly to the center on all sides from the line 7 where the edges of the side walls and bottom meet. In the embodiment shown a saucer-shaped bottom is employed. An opening 8 is formed in the bottom of the tank, and here illustrated in the geometrical center thereof. A pipe 9 is connected to the tank at the opening 8.

This pipe includes an elbow 10, which is here shown as a curved coupling. A valve 11 is shown in the pipe for controlling the flow therethrough. The valve is best placed as closely as possible to the tank. The elbow or coupling is provided with a pocket 12 and a thrust bearing 14 at the bottom thereof. A nipple 15 is formed on the elbow at the pocket 12, and an opening 16 is formed therethrough. A sleeve 17 is fastened in this opening by suitable means, such as threads 18.

The sleeve 17 is provided with a bore 19, through which a shaft 20 extends. The shaft 20 is provided with a thrust bearing 21 which coöperates with the thrust bearing 14. The upper portion of the shaft 22 is shown of greater diameter than the lower portion 23. The openings 8 and 16 are in alinement and the shaft extends through the opening 8 into the tank.

In the embodiment shown in Fig. 1, the upper part of the shaft is braced by a bracket 24, which is provided with a bore and bearing 25 for the shaft. In the embodiment shown the pipe 9 also includes a coupling 26 by which the elbow 10 is connected to the tank. Of course, any suitable coupling may be employed, or it may be omitted and the part 10 connected directly to the tank. Means are mounted upon one end of the shaft for rotating the same, here shown as a pulley 28 through which the shaft may be rotated. Liquid agitating or mixing means is mounted upon the other end of the shaft and is here shown as a propeller 30, which is positioned near the bottom of the tank, so that when operated it will hurl liquid radially in a substantially horizontal plane against the curved walls of the bottom of the tank, as illustrated, first, at A and, second, at B in Fig. 1.

The liquid is also driven, as indicated at C, upward in the central portion of the tank. When starting from rest, the stream at C becomes effective before that at B.

The tank is made considerably wider than

the propeller, say more than one and a half times as wide, in order that the liquid rising at C may fall over at D and downward, as indicated at E, joining the liquid which rises at B, falls over as indicated at F and downward as indicated at G. The liquid falling at E and G meets the current A, as indicated at H, and is again carried upwardly, as indicated at B. Some of the liquid falling at H will be drawn back, as indicated at L, to the propeller and forced upwardly against by the propeller, as indicated at C.

It will thus be seen that all parts of the contents of the tank will be thoroughly and uniformly exposed to the vessel walls, so as to be uniformly acted upon by a medium contained in the pocket 32 about the tank, or otherwise applied to the walls of the tank. Where mixing is to be done, the contents will be thoroughly mixed. It will also be seen that the liquid in the portion of the pipe between the valve 11 and the tank will be drawn, as indicated at M and N, into the tank and mixed with the rest, thus preventing the accumulation of a certain portion of the liquid in such part of the pipe which would not be acted upon at all. It will be seen that not only is this prevented, but other eddies or dead spots in the liquid are prevented by my invention, so that all of the liquid will be thoroughly mixed and exposed to the walls of the tank in the operation of the apparatus.

In Fig. 2 the propeller is shown at 301, the tank at 50, the propeller shaft at 200, the conical thrust bearing at 210 and its companion bearing at 140. The coupling 260 is made integral with the tank and is connected to a pipe coupling at 261 and to which the pipe 262 is connected. The valve is shown at 110. The pulley is shown at 280 and at 290 I show a tap which can be readily removed, so that the pipe can be cleaned.

In Fig. 3 the tank is shown at 5_1 and the opening therein at 8_1. The propeller is shown at 30_1 and the shaft at 21_1. The pipe is shown at 9_1 and is cut off, as shown at 90, so that in this particular embodiment the valve is not illustrated. It will be understood, however, that and how this pipe may be provided with an elbow equipped with an opening through which the propeller shaft extends. A sleeve is shown at 101 provided with a shoulder 102 which engages one side of the fall 5_1, and which extends through a central opening 103 in the opening 8_1. The sleeve 101 is threaded. At 104 are shown threads on the portion extending through the walls of the tank.

Suitable means are employed for engaging the side of the tank opposite the shoulder 102 and clamping the sleeve to the tank. In the embodiment shown such means consists of a nut 105, which engages the underside of the washer 106. At 108 is shown a yoke having an opening 109 therein. A plurality of horns 160, 160_1, 111 and 111, extend from said yoke upwardly and outwardly, engaging at their free ends 112 and 113 the outside wall of the tank. The lower end of the sleeve is threaded, as shown at 115, and a nut 116 is employed to draw the yoke and horns upward, so that the ends 112 and 113 will closely and firmly engage the wall of the tank.

It will readily be seen that in Figs. 3 and 6 I have illustrated apparatus which can be quickly and conveniently removed from one vessel and installed upon another, but can be easily and quickly installed upon a vessel not previously equipped to perform the functions of my invention.

By reference to Fig. 4, further action of the liquid in Fig. 1 will be seen. The liquid which is carried, as illustrated by the arrows at A, against the cylindrical portion of the tank will be deflected around the tank, as illustrated at Z in Fig. 4.

In addition to the movements of the contents of the tank I have described, the contents, as a mass, will be rotated in the tank about the central axis thereof. Owing, however, to the "skin friction" of the walls of the tank the substance nearest the walls will move slowest. The rate of rotation will be fastest at the center and will decrease in speed from the center to the walls of the tank. I have illustrated this movement, as far as practical, by the lines *a*—*a* in Fig. 5.

By placing an elbow in the pipe adjacent the tank, I am enabled to run the shaft of the propeller through the opening in the tank at which the pipe is connected, thereby reducing the openings therein, an advantage especially in glass or enamel lined tanks. I am also enabled to so locate the propeller as to prevent the accumulation of materials in the part of the pipe between the valve and the tank.

I have illustrated and described these embodiments of my invention for the purpose of better explaining the same. I do not wish to be limited to such embodiments, or the details thereof, as I contemplate many departures therefrom without departing from the spirit of my invention, which is set forth in the appended claims.

I claim:

1. In mechanism of the class described, the combination of a kettle having cylindrical side walls and a saucer-shaped bottom having an opening in the central part thereof, a vertically arranged propeller shaft projecting through said opening, a horizontally arranged propeller mounted on said shaft adjacent said opening and having its blades part above and part below the line of connection between the bottom and side

walls of the tank, whereby when the propeller is operated the material in the tank is driven upwardly in the tank or hurled substantially horizontally toward the sides thereof, the width of the tank being more than one and one-half times as great as the diameter of the propeller, and means through which the shaft and propeller are driven.

2. In mechanism of the class described, the combination of a tank having curved side walls and a bottom inclined downwardly from the sides to the center on all sides, a propeller shaft projecting through the central part of the bottom, and a propeller whose diameter is less than one-third the diameter of the tank mounted on said shaft adjacent the bottom of the tank.

3. In mechanism of the class described, the combination of a tank provided with curved side and bottom walls, a bladed propeller whose diameter is less than one-third the diameter of the tank mounted adjacent the bottom of the tank and a vertically arranged shaft on which the propeller is mounted to drive liquid contents of the tank upwardly and to hurl liquid radially in substantially horizontal directions.

4. In mechanism of the class described, the combination of a tank, a bladed propeller shaft extending through the bottom of the tank, a propeller mounted on said shaft and adapted when operated to drive liquid upwardly in the central part of the tank and to hurl it radially from the propeller in substantially horizontal directions, the diameter of the propeller being less than one-third the diameter of the tank.

5. In mechanism of the class described, the combination of a tank having curved side walls and a bottom inclined downwardly from the sides to the center on all sides, said tank having a centrally located opening in the bottom thereof, a pipe connected to the tank bottom about said opening, a propeller shaft extending through a part of said pipe and through said opening, and a propeller whose diameter is less than one-third the diameter of the tank mounted on said shaft adjacent the bottom of the tank.

6. In mechanism of the class described, the combination of a tank having an opening in the bottom, a pipe connected to said opening and having an elbow therein, a propeller shaft passing through said opening and through the wall of the pipe at the elbow, a bearing in the wall of the pipe for the shaft, a propeller on the shaft in the tank capable of drawing liquid from said pipe and means on the end of the shaft outside of the pipe through which the shaft is driven.

7. In mechanism of the class described, the combination of a cylindrical tank having a saucer-shaped bottom with an opening in the central part of the bottom, a pipe connected to the tank about the opening in the bottom, including an elbow near the opening, said elbow having an opening therein in line with the opening in the bottom of the tank, a bearing in said opening in the elbow, a valve in said pipe below the opening in the elbow, a propeller shaft extending through the bearing in the opening in the elbow and the opening in the bottom of the tank, means on the end of the shaft outside the pipe and tank through which the shaft is driven, a propeller on the shaft in the tank adapted when operated to drive a stream of liquid upwardly in the central part of the tank to draw into the tank liquid from that part of the pipe between said valve and the opening in the tank and to hurl liquid radially against the saucer-shaped bottom of the tank which deflects the liquid upwardly along the edges of the tank, the diameter of the propeller being less than one-third the diameter of the tank, to permit the liquid thus propelled upwardly to return between such two upwardly driven streams.

8. In mechanism of the class described, the combination of a tank having an opening therein, a pipe communicating with said tank through said opening, a valve in said pipe, said pipe including an elbow between said valve and the opening in said tank, said elbow being provided with an opening in line with the opening in the tank, a bearing in said elbow opening, a shaft extending through said openings, means on the end of the shaft outside the elbow through which the shaft is driven, and means on the end of the shaft within the tank adapted to be operated to draw into the tank liquid from the portion of the pipe between the valve and tank.

9. In mechanism of the class described, the combination of a tank having an opening therein, a pipe connected about said opening, a valve in said pipe, a bearing opening in said pipe between said valve and tank in line with the opening in the tank, a shaft passing through said openings, means on the end of the shaft outside the pipe for rotating said shaft and a bladed propeller on the shaft and within the tank for drawing into said tank the liquid in the pipe between the valve and tank.

10. In mechanism of the class described, the combination of a tank, a pipe connected with the tank, a valve in the pipe, and means passing through a part of the pipe between the valve and tank for forcibly drawing into the tank the contents of that part of the pipe between the valve and tank when the valve is closed.

11. In the class of liquid stirring mechanisms which extend through an opening in

a vessel wall, the combination of a threaded sleeve having a shoulder on one end adapted to engage one side of a wall of said vessel, a nut threaded on the sleeve and adapted to engage the other side of the wall of the vessel opposite said shoulder, a pair of horns joined together by a yoke having a hole therethrough, said horns engaging said vessel and said sleeve extending through said opening in the yoke, a nut threaded on said sleeve and when drawn down engaging said yoke and drawing said horns tightly against said vessel, a shaft extending through the bore of the sleeve, liquid agitating means on one end of said shaft and means whereby the shaft is rotated on the other end thereof.

12. In the class of liquid stirring mechanisms which extend through a vessel wall, the combination of a sleeve extending through the wall of the vessel, means on the sleeve to grip the wall of the vessel on each side of the vessel wall, a yoke having an opening therein through which said sleeve extends, a pair of horns, one connected to the yoke on each side thereof, and extending to engage the vessel wall, means to draw the ends of the horns against the vessel wall, a shaft extending through the sleeve, liquid agitating means on one end of the shaft and a device through which the shaft is rotated mounted on the other end of the shaft.

13. In combination, a vessel having an opening therein, a pipe leading from said opening, including an elbow with an opening therein, a valve in said pipe, the opening in the elbow being located between the valve and tank, a thrust bearing about the opening in the elbow, a shaft extending through the openings in the elbow and tank, a conical thrust bearing on the shaft adapted to bear against the thrust bearing about the opening in the elbow, liquid stirring mechanism on one end of the shaft and means through which the shaft is rotated located on the other end of the shaft.

14. In combination, a tank having an opening in the bottom thereof, a pipe connected to the tank about said opening including an elbow adjacent the opening in the tank, said elbow having an opening therein in alinement with the opening in the tank, a shaft bearing in said opening, a propeller shaft extending through said alined openings, means on said shaft outside the tank and pipe through which the shaft is rotated and a propeller on the other end of the shaft and in the tank for operating upon matter within the tank.

15. In liquid stirring mechanism which extends through an opening in the wall of a vessel, the combination of a rotatable shaft extending through said opening, means to prevent leakage of the contents of the vessel through said opening, a propeller mounted on said shaft in said vessel, a yoke having an opening through which the shaft extends, a plurality of horns extending from said yoke and adapted to engage the vessel, means to draw said horns against said vessel wall, means to support said shaft in said opening and means through which said shaft is operated.

16. In a device of the class described, the combination of a propeller shaft, a propeller on said shaft and mechanism to removably mount said shaft upon a vessel with the shaft extending through an opening therein and the propeller on the inside of the vessel including a plurality of horns adapted to engage the vessel wall at one end and joined together at the other, and means to support said shaft in said horns.

17. In a device of the class described, the combination of a propeller shaft, means to removably support one part of said shaft in an opening in a vessel wall and to close the opening about said shaft, a propeller on said shaft, means to removably support the part of the shaft outside the vessel wall, including horns, each engaging said vessel wall at one end, and means through which the shaft is rotated.

18. In mechanism of the class described, the combination of an agitating propeller, a shaft therefor adapted to be extended through an opening in a vessel wall, means to removably mount said shaft on said vessel including a yoke provided with an opening through which the shaft extends, a plurality of horns extending from said yoke to said vessel walls and means to force the ends of the horns against the wall of the vessel, and means through which the shaft is rotated.

In witness whereof, I have hereunto set my hand this 11th day of March, 1918.

NIELS D. NIELSEN.

1715 (Part of Defendant's Exhibit 35.)

(U. S. Letters Patent No. 1,298,645 to F. B. Beckwith, April 1, 1919.)

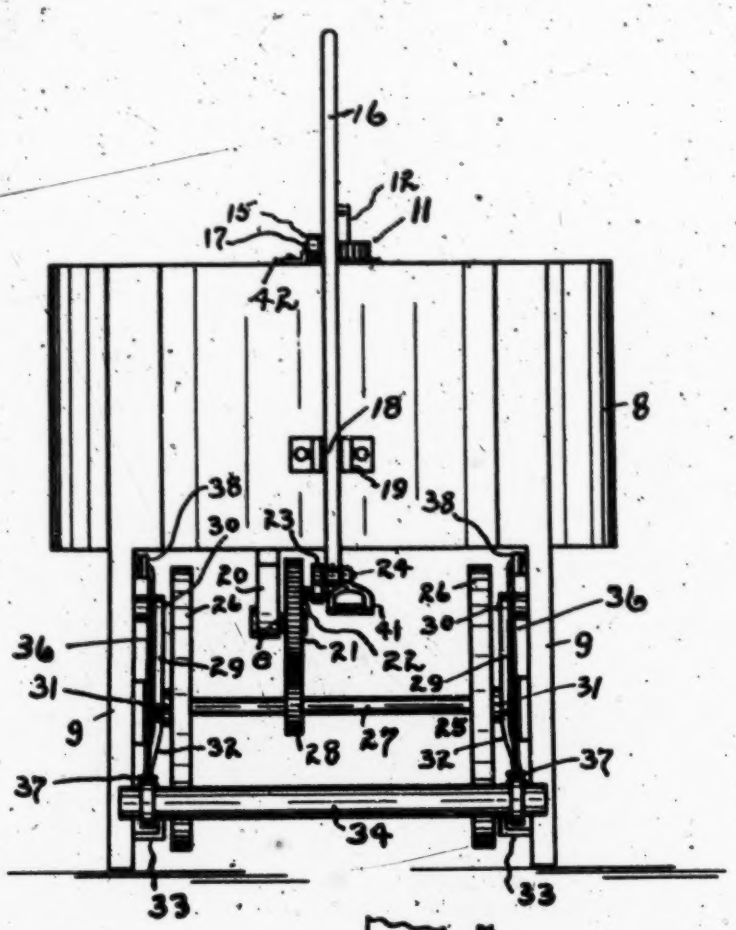
1666

F. B. BECKWITH.
WASHING MACHINE.
APPLICATION FILED NOV. 11, 1918.

1,298,645.

Patented Apr. 1, 1919.
3 SHEETS—SHEET 3.

Fig. 5.



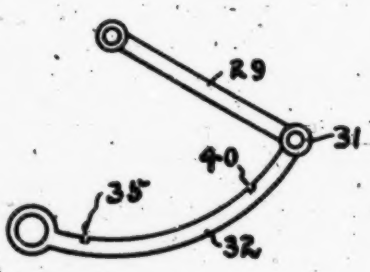


Fig. 6.

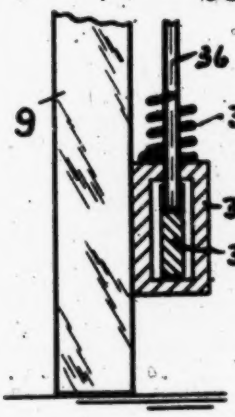


Fig. 7.

Inventor

Franklin B. Beckwith,

By Hiram A. Sturges,

Attorney

1668

F. B. BECKWITH.

WASHING MACHINE.

APPLICATION FILED NOV. 11, 1918.

1,298,645.

Patented Apr. 1, 1919.

3 SHEETS—SHEET 2.

Fig. 3.

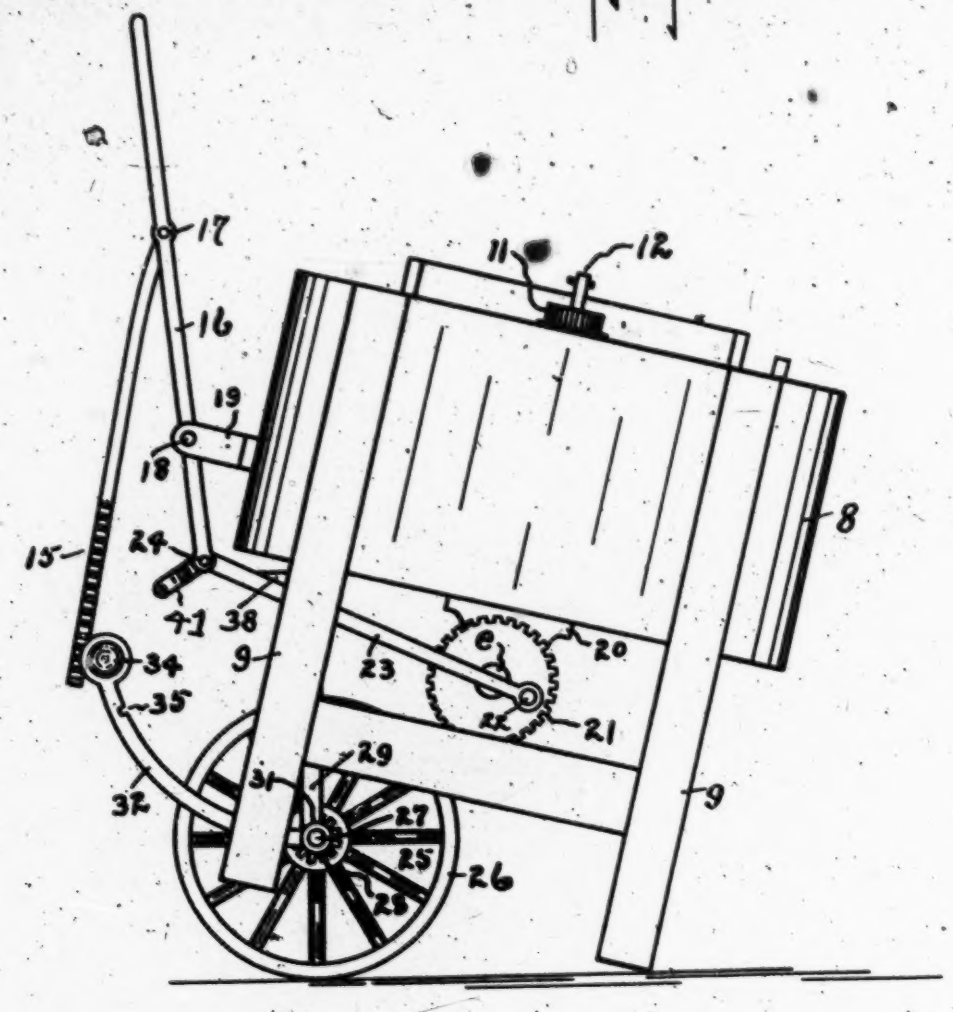
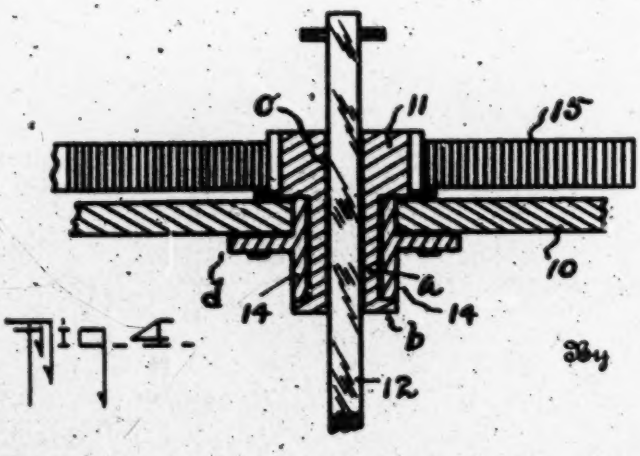


Fig. 4.



Inventor

Franklin B. Beckwith,

By Hiram A. Sturges.

Attorney

1670

WASHING-MACHINE.

APPLICATION FILED NOV. 11, 1918.

1,298,645.

Patented Apr. 1, 1919.

3 SHEETS—SHEET 1.

Fig. 1.

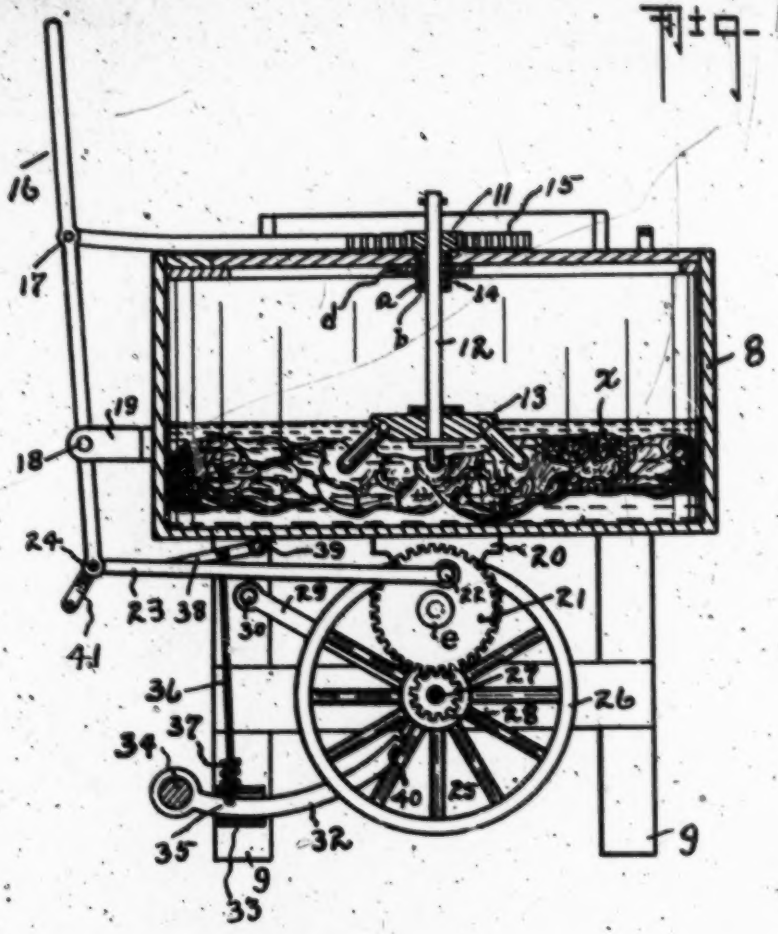
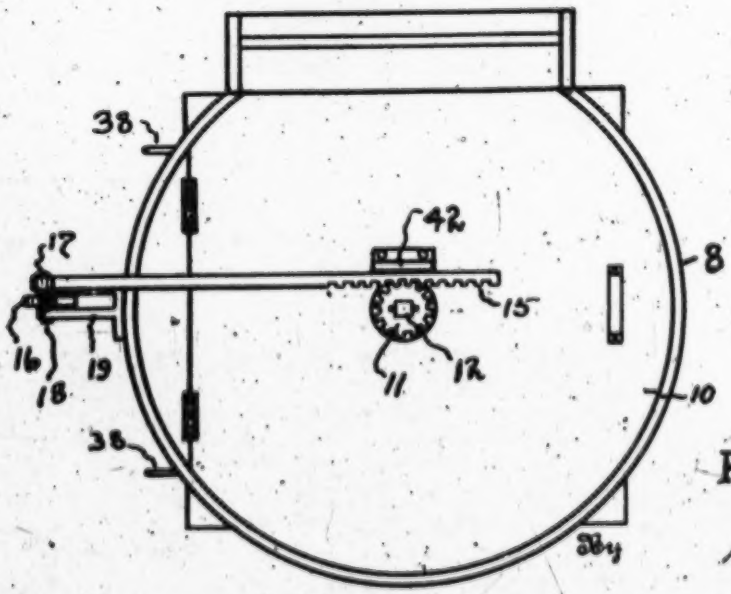


Fig. 2.



Inventor

Franklin B. Beckwith,

By Hiram A. Sturgal,

Attorney

FRANKLIN B. BECKWITH, OF PLATTSMOUTH, NEBRASKA.

WASHING-MACHINE.

1,298,645. Specification of Letters Patent. Patented Apr. 1, 1919.

Application filed November 11, 1918. Serial No. 262,066.

To all whom it may concern:

Be it known that I, FRANKLIN B. BECKWITH, a citizen of the United States, residing at Plattsmouth, in the county of Cass and State of Nebraska, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to an improvement in washing machines, and has for one of its objects to provide a machine having parts so arranged that the vertical shaft and its dolly may have its required reciprocatory rotation with greater facility than ordinary. Another object is to provide convenient means for a movement of the machine from one part of a room to another, whether the tub is filled or empty. Other objects relate to simplicity in construction so that the parts may be economically constructed and will be durable. The invention includes an axle provided with wheels arranged below the tub, adapted to rotate during operation, as balance-wheels, or may be used as a truck upon which the entire weight of the tub and contents may be supported, both of these features being found to be of great advantage.

With the foregoing objects in view, the invention presents a novel construction, combination and arrangement of parts as described herein and claimed, and as illustrated in the drawings, it being understood that size, form, proportion and minor details may be changed without departing from the invention, the scope of the invention being determined by the appended claims.

In the drawing, Figure 1 is a view in longitudinal section of a washing machine embodying my invention, one of the guides for a segmental arm being also in section. Fig. 2 is a plan view of the machine. Fig. 3 is a side view showing the machine disposed in an inclined position and supported, in part, upon wheels. Fig. 4 is a sectional detail showing the alining gear-wheel splined on the vertical shaft. Fig. 5 is a rear side view of the machine. Fig. 6 shows one of the axle-bearing arms employed. Fig. 7 is a detail showing a locking means for an axle-bearing arm.

I provide a tub 8 of any suitable proportion, the conventional legs and lid therefor being indicated, respectively, at 9 and 10. Agitating devices are employed consisting, in part, of an alining gear-wheel 11 which, as best shown in Fig. 4, has a downwardly projecting, tubular stem *a* with a terminal annular flange *b*, the aperture *c* for the wheel 11 and its stem preferably being angular in cross-section for receiving the vertical spindle or dasher-shaft 12, upon the lower end of the latter being slidably mounted, the conventional, non-rotatable dolly 13, the stem *a* having bearings in the pair of tubular segments 14 which are disposed between the lower end of the wheel 11 and the flange *b*, the segments being provided between their ends with flanges *d* which are suitably secured to the lower side of the lid 10.

The parts thus described are of simple construction and may be conveniently assembled, and if a reciprocatory rotary motion is imparted to the gear wheel 11, the shaft and dolly will have a corresponding movement for agitating the contents of the tub, the shaft 12, on account of its bearings being normally maintained in a vertical position, and being adapted to have slidable movements in said bearings, so that if desired by an operator, the dolly may suitably engage the fabrics *x* (Fig. 1.), this being of advantage since the contents of the tub, as to volume, may not be uniform at all times.

The wheel 11 is actuated by means of a rack-bar 15 movable by the hand-lever 16, the latter having a pivotal connection therewith, as indicated at 17. The hand-lever 16 is mounted pivotally between its ends, as indicated at 18, upon a bracket 19 which is suitably secured to the side of the tub.

Numeral 20 indicates a hanger which is secured to the bottom of the tub. Its lower end has a wrist-pin *e* mounted therein to provide bearings for a toothed gear 21, the latter being provided with a pivot-pin 22 upon which is mounted an actuating-rod 23, the opposite end of said rod having a pivotal connection, as indicated at 24, upon the lower end of the lever 16; and as thus described, since the toothed gear 21 will be rotated during operation and will perform the functions of a balance wheel, it is a material advantage as an aid in operating the hand-lever, while effecting reciprocatory rotation of the shaft 10, for agitating the contents of the tub.

In instances when the tub is nearly filled with water, together with the clothing or other fabrics to be washed, a greater mo-

mentum is required, and therefore a combined vehicle and impulse-member 25 is provided, consisting of a pair of wheels 26 rigidly mounted on an axle 27, the latter having a pinion 28 mounted thereon.

Numerals 29 indicate a pair of links having pivotal mountings 30, for their upper ends, preferably, upon the legs 9, each link at its inner end being provided with a collar 31, and it will be understood that the pair of collars 31 provide bearings for the ends of the axle 27.

Any suitable means may be provided for moving the pinion 28 into engagement with the rotatable toothed gear 21 so that the wheels 26 may provide additional momentum, said means also being operative for moving the axle downwardly so that the wheels may support the weight of the tub, the means herein shown consisting, in part, of the pair of rearwardly extending, segmental arms 32 with which the links are provided and which extend rearwardly from the collars 31, each arm being disposed in one of the guides or apertured brackets 33 which is secured upon a leg 9, below the pivotal mounting 30 of a link 29, and it will be understood that the axle 27 and its wheels 26 may have a swinging movement in one direction to cause the teeth of the pinion 28 to engage the toothed gear 21, whereby the greater degree of momentum will be provided for actuating the shaft 12.

Numeral 34 indicates a foot-rail which connects the outer ends of the arms 32, and in order that the pinion 28 may be maintained in engagement with the toothed gear 21 each arm 32 is provided with a notch 35 for receiving the lower end of a pawl-rod 36, said rods 36 being provided with springs 37 tending to normally press them in a direction of the arms 32, the upper ends of the pawl-rods, as best shown in Figs. 1 and 5, being pivotally connected with the handles 38 which are pivotally mounted at their inner ends as indicated at 39, whereby the rods 36 may be moved upwardly, against the force of the springs 37, the links 29 and wheels 26 thereupon having a downward swing movement by action of gravity, the arms 32 moving in an arc of a circle, the center of which is a pivotal mounting 30 of a link 29. An operator, by a downward pressure on the foot-rail 34 may cause engagement of the teeth of the pinion 28 with the toothed gear 21, and the parts mentioned are arranged for convenient operation.

The arms 32 are each provided with a second notch 40, and the actuating-rod 23, at its outer end, is provided with a handle 41, and the machine may be readily elevated from the floor with its weight supported by the wheels, the operator, for this purpose using the hand-lever 16 or handle 41 for elevating the rear side of the tub to permit the wheels 26 to swing downwardly to the position shown in Fig. 3, the pawls, by use of handles 38, being first released from the notches 35 to permit this movement.

When the links 29 are disposed in substantially a vertical position, the pawls will engage in the notches 40, which operates to maintain the links in fixed relation with the longitudinal axis of the tub, and the machine may then be moved about a room, member 25 operating as a vehicle for this purpose, this feature obviously being a great advantage.

Numeral 42 indicates a guide provided for the top of the lid which, during operation, maintains the rack-bar in engagement with the gear wheel 11. The rack-bar, therefore, may be swung to the position shown in Fig. 3, if desired, when using the lever 16 or handle 41 for moving the machine; and for actuating the shaft 12, the rack-bar may be swung forwardly to be disposed as shown in Fig. 2.

When only a limited degree of momentum is required for actuation of the shaft 12, the pawls may be disengaged from the notches and the wheels and legs 9 will rest upon the floor, and since the pinion 28 will be disengaged from the toothed gear 21, the latter, during operation, will rotate as a balance wheel.

By referring to Fig. 1 it will be seen that the toothed gear 21 is disposed in line with the longitudinal axis of the tub, and therefore in line with the center of gravity, which is obviously an advantage, also that the axle and wheels 26 are disposed in the same line when the links 29 have been swung inwardly for engagement of the pinion 28 with the toothed gear 21.

What I claim as my invention is,—

1. In devices for the purposes described, a tub having leg supports and provided with agitating devices including a dasher-shaft having a gear wheel and also including a rack-bar adapted to engage the gear-wheel, a toothed gear in bearings below the bottom and carried by the tub, a pair of pivotally mounted links below the tub each being provided with a segmental arm, an axle having bearings in the pair of links and having wheels rigidly mounted thereon, a pinion rigidly mounted on the axle, a foot-rail connecting the segmental arms and movable for moving the pinion of said axle into engagement with the toothed gear, an actuating-rod connected with the toothed gear, a hand-lever pivotally mounted between its ends and connected with the rack-bar and actuating-rod, and being movable for causing coincident actuation of the wheels of said axle and the gear wheel of the dasher-shaft.

2. In combination with a tub having its bottom provided with a hanger and having leg-supports, apertured brackets on the leg-

supports, a dasher-shaft provided with a gear-wheel and disposed in line with the axis of the tub, a rack-bar adapted to engage the gear-wheel, a toothed gear having bearings in the hanger, an actuating-rod pivotally connected with the toothed gear, a pair of pivotally mounted links below the tub each having a segmental arm engaging in an apertured bracket, an axle having bearings in the pair of links and having wheels non-revolubly mounted thereon, a pinion mounted non-revolubly on the axle, said links being adapted to have a swinging movement for moving the pinion of the axle into engagement with the toothed gear, a hand-lever connected with the rack-bar and actuating-rod and adapted to have swinging movements for causing coincident actuation of the wheels of said axle and the gear-wheel of said dasher-shaft.

3. In devices for the purpose described, a tub having leg-supports and provided with agitating devices including a dasher-shaft having a gear-wheel and including a rack-bar engaging the gear-wheel, a toothed gear in bearings below the tub, a pair of pivotally mounted links below the tub, an axle having bearings in the links and having wheels rigidly mounted thereon, a pinion rigidly mounted on the axle, said links being movable for moving the pinion of the axle into engagement with the toothed gear, means to maintain the pinion of the axle in engagement with said toothed gear, an actuating-rod connected with the toothed gear, and movable means connected with the rack-bar and actuating-rod for causing actuation of the wheels of the axle and said gear-wheel.

4. In combination with a wash tub having supporting-members and provided with agitating devices including a vertical shaft provided with a gear wheel, a rack-bar engaging the gear-wheel, apertured brackets on said supporting-members, a toothed gear having journaled bearings below and supported by the tub, an actuating-rod connected with the toothed gear, a pair of links each having a pivotal mounting for its upper end upon said supporting-members and provided with a curved arm having a longitudinal part disposed equi-distant from said pivotal mounting and engaging in an apertured bracket, an axle journaled in and near the inner ends of said links and having wheels non-revolubly mounted thereon, a pinion mounted non-revolubly on the axle, said links being movable in a circle's arc for disposing the pinion of the axle in engagement with said toothed gear, a pawl-rod for engaging the curved arm of a link for maintaining said pinion in engagement with said toothed gear, and movable means for causing simultaneous actuation of the rack-bar and said actuating-rod.

5. In combination with a washing machine consisting of a tub provided with legs and agitating devices and having a rock-lever movable for actuating said agitating devices, a toothed gear below the tub revoluble by the rock-lever, a pair of links below the tub, an axle journaled in the links and provided with wheels, a pinion on the axle, said links being adapted to have swinging movements in one direction to dispose the wheels below the plane of the legs, and adapted to have swinging movements in an opposite direction to cause engagement of the pinion of said axle with the toothed gear.

In testimony whereof, I have affixed my signature in presence of two witnesses.

FRANKLIN B. BECKWITH.

Witnesses:

R. F. PATTERSON,

ANNE C. HASSLER.

1721 (Part of Defendant's Exhibit 35.)

(U. S. Letters Patent No. 1,412,714 to H. Sieben, April 11, 1922.)

1676

H. SIEBEN.

WASHING MACHINE APPLICATOR.

APPLICATION FILED FEB. 10, 1921.

1,412,714.

Patented Apr. 11, 1922.

Fig. 1.

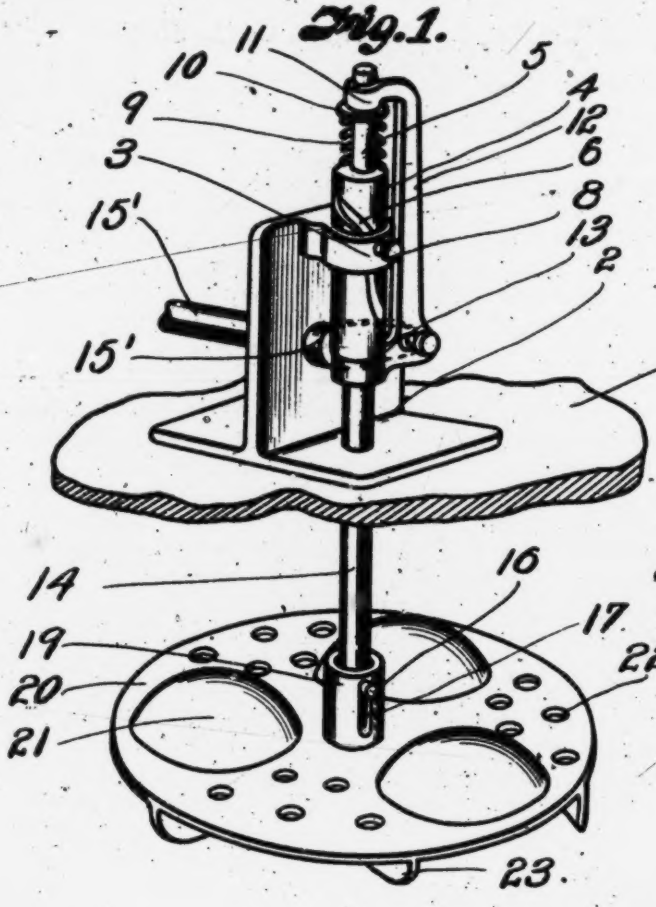


Fig. 4.

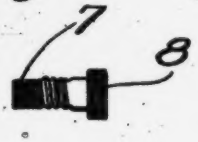


Fig. 3.

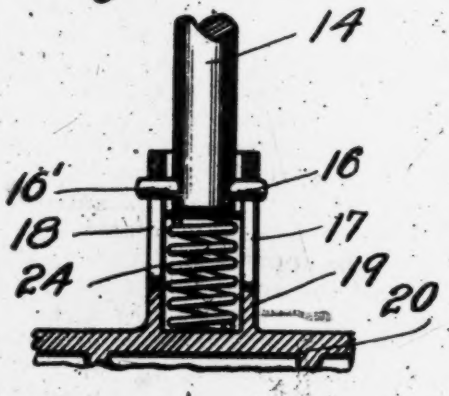
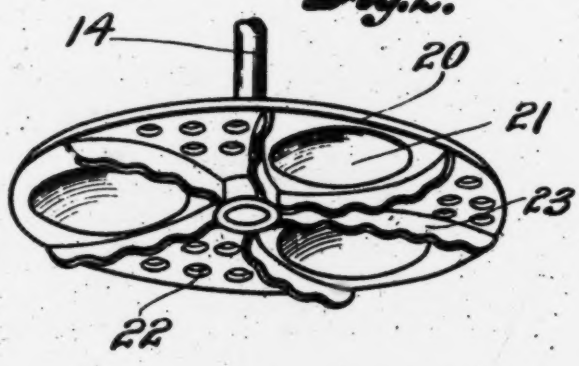


Fig. 2.



INVENTOR

Henry Sieben.

BY Arthur C. Brown

ATTORNEY

UNITED STATES PATENT OFFICE.

HENRY SIEBEN, OF KANSAS CITY, MISSOURI.

WASHING-MACHINE APPLICATOR.

1,412,714. Specification of Letters Patent. Patented Apr. 11, 1922.

Application filed February 10, 1921. Serial No. 443,915.

To all whom it may concern:

Be it known that I, HENRY SIEBEN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Washing-Machine Applicators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to washing machine applicators or agitators and means for mounting the same.

The invention contemplates the provision of means for causing a reciprocatory and a rotary motion to be imparted to the applicator or agitator by suitable mechanism, the applicator itself being constructed so that a suction will be created against the clothes with which it comes in contact so as to cause the water to be forced through the mesh of the fabric to be cleaned.

Means is also provided for effecting yielding contact between the applicator and the clothes so that in the event that the pile of clothes within the washing machine receptacle is uneven, the applicator may have sufficient give to prevent binding or breaking of the parts.

The novel construction of the preferred form of my invention is illustrated in the accompanying drawings, in which—

Fig. 1 is a perspective view of the applicator and its mounting, part of the top of the receptacle being shown in section.

Fig. 2 is a detail perspective view of the applicator.

Fig. 3 is a sectional view through the connection between the applicator and its actuating stem, and

Fig. 4 is a detail view of a bearing screw.

Referring now to the drawings by numerals,

1 designates a portion of the top of a clothes receptacle, the construction of which may partake of any conventional form. Supported upon the top of the clothes receptacle is a standard 2, having a loop 3 rigid therewith to receive the barrel 4 rigid on the stem 5, which actuates the applicator. The drum or enlarged portion 4 is provided with a spiral groove 6, adapted to be engaged by the rotatable anti-friction ring 7 on the screw 8, which engages the loop 3.

The upper reduced portion of the stem 5 carries a coil spring 9, one end of which bears against the drum 4 and the other against a washer 10 resting against the bearing 11 through which the upper extremity of the stem 5 projects. The bearing 11 is carried by a yoke 12, having a bearing 13 at its lower end, through which the lower portion 14 of the stem 5 projects. The yoke is adapted to be reciprocated through the medium of an eccentric 15 on a drive shaft 15′.

The stem 14 projects through the top of the receptacle and has on its lower end oppositely disposed pins or projections 16 and 16′, which work in longitudinal slots 17 and 18 in the barrel 19 on the applicator disk 20. The applicator disk 20 is provided with a plurality of concavo-convex portions 21, the concave portions being on the under face of the disk 20 and between the concave portions are perforations 22, as will be clearly apparent by reference to Figs. 1 and 2.

The concavo-convex portions 21 constitute suction cups and on the under face of the disk 20 are radially curved corrugated ribs 23 which tend to exert a rubbing action against the clothes.

The lower end 14 of the stem 5 is in line with a coil spring 24, one end of which is adapted to bear against the end 14 and the other against the floor of the barrel 19.

When the shaft 15′ is rotated, a reciprocatory action will be communicated to the yoke 12, causing a reciprocation of the stem or shaft 5. Since the shaft rotates idly in the bearings 11 and 13 and since the anti-friction device 7 on the screw 8 is rotated in the groove 6, it will be apparent that an up-and-down motion of the yoke 12 will cause a corresponding motion to the shaft or stem 5 and likewise a rotating motion, due to the inter-engagement between the screw pin 8 and the groove 6. Therefore, both a rubbing and suction action will be imparted to the disk 20.

The up-and-down movement of the disk 20 will cause a suction created by the cups 21 and the openings 22 will cause water to be forced through them, creating a circulation through the meshes of the clothes. The partial rotative movement of the disk 20 will

cause the corrugated, radially curved ribs or blades 23 to exert a rubbing action against the clothes to loosen the dirt carried thereby.

It will be apparent that the applicator will cause considerable agitation of the water within the receptacle as well as an appreciable rubbing action against the clothes so that the dirt may be easily removed therefrom.

If the applicator comes in contact with a lumpy batch of clothes, the barrel 19 will have a reciprocatory motion, independent of the stem 5; that is, it may move relative to the stem 5 against the spring 24. This will prevent binding or breaking of the parts due to the yieldability of the applicator with respect to the stem.

What I claim and desire to secure by Letters-Patent is:

1. An applicator for washing machines comprising a stem, and a disk connected to said stem, said disk having suction cups pressed from the bottom portion thereof and provided with openings between the suction cups.

2. An applicator for washing machines comprising a stem, a disk connected to said stem, said disk having suction cups pressed from the bottom portion thereof and provided with openings between the suction cups, and radial, corrugated blades on the under side of the disk.

3. An applicator for washing machines comprising a disk having alternate perforate and imperforate sections, the imperforate sections being concaved to form suction cups, radial blades projecting from the disk and separating the perforate and imperforate sections, and means for actuating the disk.

4. An applicator for washing machines comprising a disk having apertures and suction cups, a barrel on said disk, a stem movably connected with the barrel, and a spring in the barrel for cushioning operative thrust of the stem relative to the disk.

5. A washing machine applicator comprising a disk having downwardly opening cups formed therein, means for imparting simultaneous vertical and rotary movement to the disk, and curved blades on the under face of the disk, partially surrounding the edges of the cups.

6. A washing machine applicator comprising a disk having downwardly opening cups formed therein, means for imparting simultaneous vertical and rotary movement to the disk, and curved blades on the under face of the disk, partially surrounding the edges of the cups, the under edges of the blades being corrugated, whereby surge and agitation of water impinged by the blades is effected during operation of the disk.

7. A washing machine applicator comprising a disk having downwardly opening cups formed therein, means for imparting simultaneous vertical and rotary movement to the disk, and a pair of curved blades for each cup extending from near the center of the disk about opposite sides of the cups.

In testimony whereof I affix my signature.

HENRY SIEBEN.

1724 (Part of Defendant's Exhibit 35.)

(U. S. Letters Patent No. 1,464,362 to H. C. Hirschy, August 7, 1923.)

1680

Aug. 7, 1923. 1,464,362

H. C. HIRSCHY

WASHING MACHINE

Filed Feb. 23, 1922 2 Sheets-Sheet 1

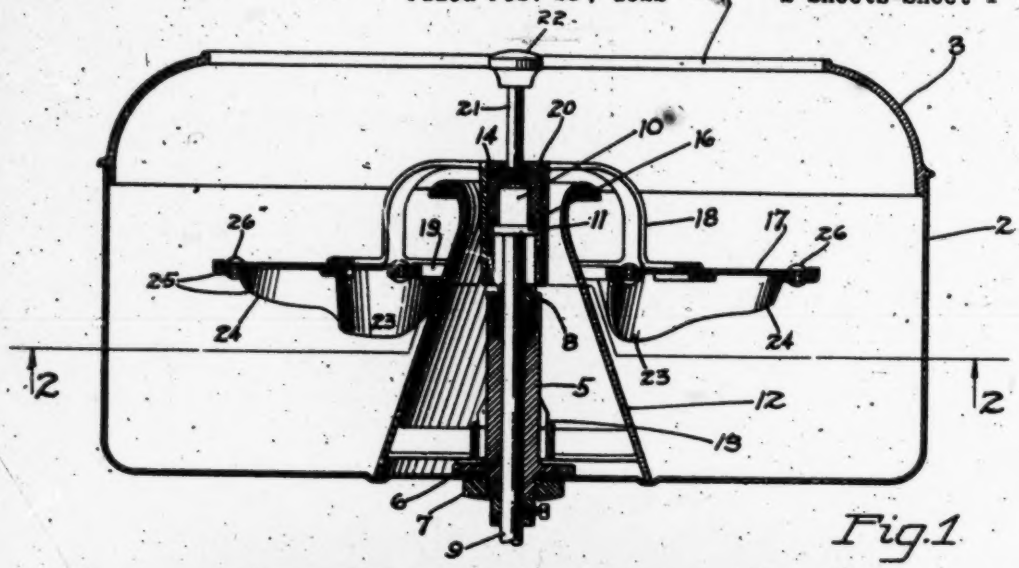


Fig.1

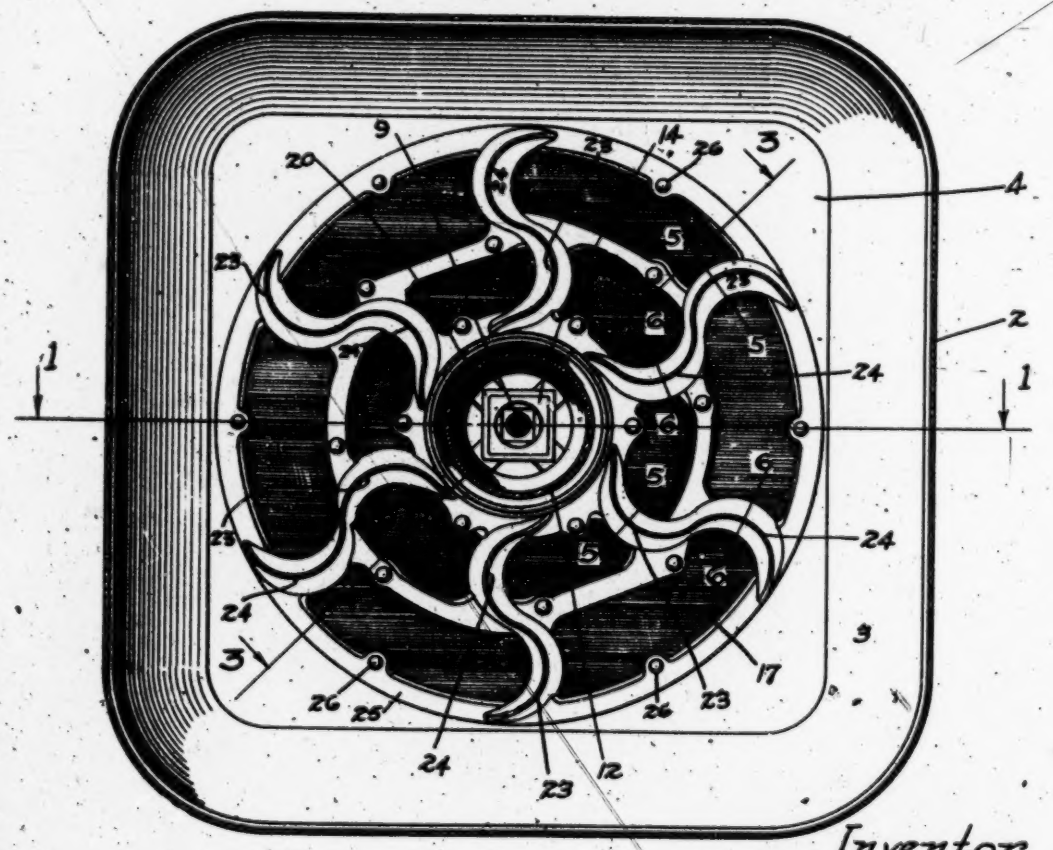


Fig.2

Inventor
HERMAN C. HIRSCHY
By Paul & Paul
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1682

Aug. 7, 1923. 1,464,362

H. C. HIRSCHY

WASHING MACHINE

Filed Feb. 23, 1922 2 Sheets-Sheet 2

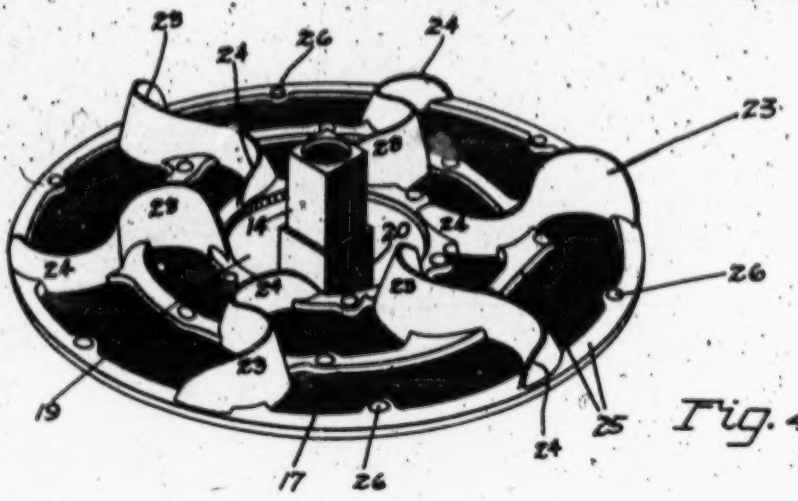


Fig. 4

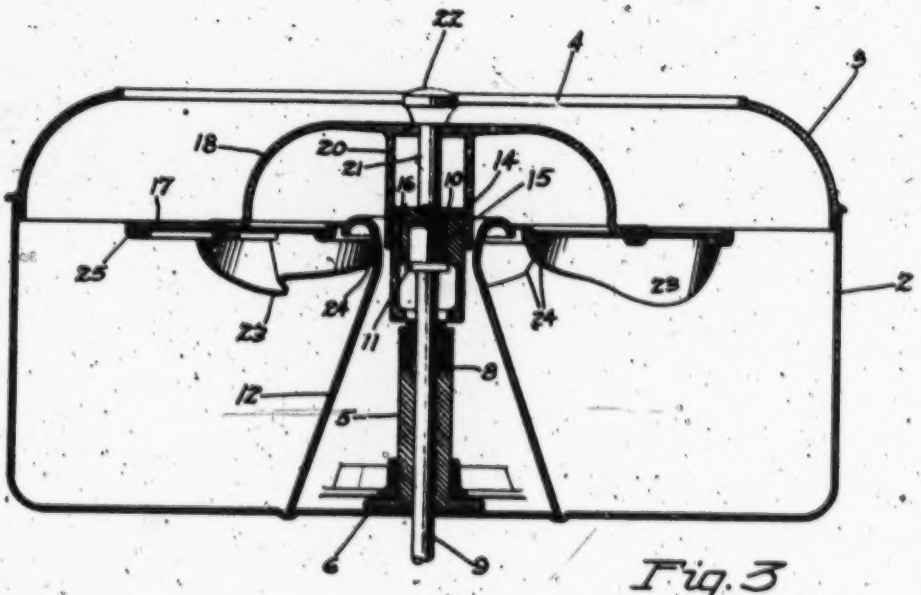


Fig. 3

Fig. 5

Fig. 6

Inventor:
HERMAN C. HIRSCHY

By Paul Paul

ATTORNEYS

Patented Aug. 7, 1923. 1,464,302

UNITED STATES PATENT OFFICE. 1683

HERMAN C. HIRSCHY, OF DULUTH, MINNESOTA.

WASHING MACHINE.

Application filed February 23, 1922. Serial No. 538,709.

To all whom it may concern:

Be it known that I, HERMAN C. HIRSCHY, a citizen of the United States, resident of Duluth, county of St. Louis, State of Minnesota, have invented certain new and useful Improvements in Washing Machines, of which the following is a specification.

The object of my invention is to provide a washing machine adapted for general clothes washing and in which comparatively thin, delicate fabrics may be thoroughly washed without being torn or otherwise damaged.

A further object is to provide a washing machine in the operation of which less power will be required and it will therefore be less expensive to use and maintain.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a vertical sectional view through a washing machine tub with my invention applied thereto,

Figure 2 is a horizontal sectional view on the line 2—2 of Figure 1, looking upwardly,

Figure 3 is a view corresponding to Figure 1, showing the oscillating agitator in its raised position,

Figure 4 is a perspective view of the agitator in an inverted position,

Figure 5 is a sectional view on the line 5—5 of Figure 2,

Figure 6 is a sectional view on the line 6—6 of Figure 2.

In the drawing, 2 represents a washing machine tub, preferably of sheet metal, though any other suitable material may be used. The tub is preferably of the form shown in Figure 2, with parallel side walls and rounded at the corners and an upper portion 3 having inwardly projecting upper edges overhanging the interior of the tub and an opening 4, which when the tub is in use is closed by a suitable cover, not shown.

Within the tub is an upright standard 5 secured to the bottom by suitable means, such as a flange 6 and lock nut 7. The upper end of this standard has a suitable stuffing box 8 and a drive shaft 9 projects up through the standard in the stuffing box and has an upper end 10, rectangular in cross section, preferably circular, at the base of which is a flange 11. It will be understood that the driving shaft may be brought down through the top of the tub if preferred. I merely illustrate one application herein, as both methods of driving are common in power washing machines.

Enclosing the drive shaft I provide a cone 12 that is seated at its lower end on the bottom of the tub and has a suitable locking connection at 13 with the upright standard. This cone forms the subject matter of U. S. Patents Nos. 1,336,781 and 1,349,338 and I make no claim broadly therefore to the same herein.

A block 14 has a socket 15 to receive the upper end of the drive shaft, a shoulder 16 being formed in the walls of said socket to rest upon the flange 11 and support the block for oscillation with the drive shaft, it being understood that this shaft has a rocking reciprocatory movement to impart the desired stroke to the agitator. 17 represents a disc, preferably of metal, and 18 is a yoke secured thereto and overhanging the central opening 19 in the disc 17. This yoke is open on all sides to allow the free circulation of the water therethrough and through the opening in the disc between it and the walls of the cone. A cap 20 is centrally mounted on the yoke and depends therefrom with parallel side walls adapted to fit snugly against the correspondingly shaped walls of the block 14, said cap being free, however, to slide vertically on said block and allow the disc or agitator to adjust itself vertically to the volume of clothes beneath it in the tub. When there are only a few clothes in the tub, the disc or agitator may drop down to the position shown in Figure 1, the lowermost point of its vertical movement. When, however, there is a considerable body of clothes in the tub, then the agitator will be raised, as indicated in Figure 3, where it is shown at the limit of its upward movement.

The block 14 has a rod 21 secured therein and projecting up through the cap 20 and provided at its upper end with a lifting knob 22 by means of which the agitator may be conveniently handled to place it in its working position in the tub or removed therefrom. The cap 20 is free to slide vertically on this rod during the rise and fall of the agitator to accommodate itself to the volume of clothes. As indicated, however, in Figures 1 and 3, the walls of the cap at all

times will be in contact with the walls of the block and consequently a rocking movement will be imparted to the agitator at any point in its vertical movement. The entire device may, however, be easily and quickly detached from the driving shaft by grasping the knob 22 and pulling upwardly thereon.

Washing machines as usually constructed which are capable of washing large and coarse pieces effectively, cannot wash finer pieces and thoroughly clean them without undesirable hard usage and stretching out of shape, resulting from pulling, dropping or forcing the garments through the water. It has been found impracticable to wash fine delicate fabrics by ordinary methods. The garments are sure to be torn or stretched or damaged in some way with each washing. It has been my primary object, therefore, in producing this machine, to avoid moving a mass of clothes violently and provide an apparatus which will force the water through the meshes of the fabric with sufficient agitation or movement of the garments to facilitate the flow of the water therethrough and present new surfaces or areas to the action of the water. With this end in view I provide the underside of the disc or agitator with a series of webs or fins.

Referring now to Figure 4, I have shown these webs in detail, serpentine in form, and having an end 23 tapered gradually to an end 24. These webs are wedge-shaped in cross section, as indicated in Figures 5 and 6, the depth of the webs varying from one end to the other and, as indicated in Figure 4, these varying ends alternate in position on the surface of the disc, one web having its deeper end adjacent the axis of the disc and its shallower or smaller end at the periphery. The next web is shown in the reverse position. The webs are spaced a suitable distance apart and in this particular instance I have shown six of them on the bottom of the agitator disc, but it will be understood that this number may be increased or decreased, as desired, and I may make the webs deeper or shallower, as may seem advisable, or increase or decrease the degree of the serpentine twist therein. Generally speaking, however, I have found that the relative arrangement of the webs and the depth and degree of taper to be approximately correct to obtain the best results. These webs may be made of any suitable material, but are preferably cast in the skeleton metallic frame 25 shown in Figure 4 and secured to the underside of the agitator disc by rivets 26 or other suitable means.

In action, these webs in the rocking movement of the agitator have the effect of throwing the water downwardly and outwardly or obliquely with respect to the bottom of the tub, forcing it through the meshes of the fabric and thoroughly clearing the same, imparting only sufficient movement to the garments to cause fresh surfaces to be presented to the action of the water and thereby preventing any damage to the clothes, which will inevitably result when delicate or fine fabrics are drawn, dropped or pushed through the water by the operation of washing machines of the ordinary type.

The shape of the webs, that is, their wedge construction in cross section and taper from one end to the other, not only causes a downward movement of the water but also tends to force it against the tapered walls of the cone, from which it is deflected outwardly through the clothes. The result is the garments are thoroughly cleansed by the application of this principle of forcing the water through the meshes of the fabric while the garments are swayed or moved only to such a degree that all parts or areas thereof will be exposed to the action of the water. The agitator readily adapts itself to the varying volume of clothes in the tub, settling down to its lowermost position when there are only a few clothes and rising gradually in the tub to accommodate it to increasing volume. In all positions of the agitator the webs will have the same function and will produce substantially the same action in forcing the water through the meshes of the fabric.

I have shown my improved agitator in connection with a cone resting upon the bottom of the tub, but do not wish to be confined to this combination, as the agitator with the depending webs or fins there may be used in a tub without the cone. In the operation of the machine, it will be understood that a reciprocating movement in a rotary direction is imparted to the agitator through suitable power applied to the shaft causing the depending webs to move back and forth through the water in the tub. The effect of this motion is to establish currents in the body of water flowing downwardly and outwardly or obliquely in the tub and passing through the body of cloth therein, the garments being oscillated and shifted sufficiently to expose all parts of the surface to the action of the water without, however, in any way exerting a drawing or pushing action on the clothes, which would tend to break the threads of fine, delicate fabrics or otherwise damage the garments. I have found that with this apparatus expensive laces, silks, lingerie, fine woolens, sweaters or other articles can be easily and quickly washed and cleansed without the necessity of subjecting such garments to the damaging action of drawing or pushing them through the water in the tub. I not o

can cleanse the clothes better by my improved method of forcing the water through them, but I can operate the machine for a considerably less expense, owing to the fact that less power is required to oscillate my improved agitator.

I claim as my invention:

1. A washing machine comprising a tub, a drive shaft projecting therein, an agitator operated by said drive shaft and having means provided with radially extending downwardly converging walls for forcing the water through the meshes of the fabric.

2. In combination, with a washing machine tub, an agitator having a series of webs thereon for agitating the water and forcing it through the meshes of the garments, some of said webs increasing in depth from their outer toward their inner ends, and others of said webs decreasing in depth from their outer toward their inner ends.

3. In combination, with a washing machine tub, an agitator having a series of webs thereon for agitating the water and forcing it through the meshes of the garments some of said webs increasing in depth from their outer toward their inner ends.

4. In combination, with a washing machine tub, an agitator having serpentine webs thereon for agitating the water and forcing it through the clothes.

5. In combination, with a washing machine tub, an agitator, and a plurality of serpentine webs radially arranged thereon for imparting a downward and outward movement to the water and forcing it through the meshes of the clothes.

6. In combination, with a washing machine tub, a water agitating device including a plurality of radial webs, wedge-shaped in cross section, and tapered from end to end for forcing the water through the meshes of the garments.

7. In combination, with a washing machine tub, a water agitating device including a plurality of webs, radially arranged but serpentine in form and tapered from one end to the other for imparting a downward and outward movement to the body of water in the tub.

8. In combination, with a washing machine tub, an agitator, a plurality of radial webs thereon, said webs being serpentine in form, decreasing in depth from one end to the other and alternately arranged on the agitator, said webs imparting a combined downward and outward movement to the body of water in the tub.

9. In combination, with a washing machine tub, a cone mounted therein, an agitator encircling the upper portion of said cone and a plurality of water agitating webs mounted on said agitator and co-operating with said cone to impart a downward and outward movement to the water in the tub.

10. In combination, with a washing machine tub, a drive shaft having a rectangular end, a block having a correspondingly shaped socket to receive the end of said shaft, an agitator having a cap mounted for vertical movement on said block to slide freely thereon, and said agitator having means for imparting a downward and an outward movement to the body of water in the tub and free to rise and fall on said block with the variation in the volume of clothes in the tub.

11. In combination, with a washing machine tub, a drive shaft, a block having a socket to receive said shaft to rock with said shaft but held against independent movement thereon, a rod mounted in said block projecting upwardly therefrom and having a finger grip, an agitator having a cap slidable on said rod and provided with walls to encircle said block and slide vertically on said block with the up and down movement of said agitator, and said agitator having means thereon for imparting a downward and outward movement to the body of water in the tub.

12. In combination, with a washing machine tub, an agitator comprising a flat disc and means for imparting a rotary reciprocating movement thereto, said disc having on its under surface a plurality of depending serpentine webs spaced apart on the surface of the disc and extending radially thereon.

13. In combination, with a washing machine tub, an agitator comprising a flat disc and means for imparting a rotary reciprocating movement thereto, said disc having on its under surface a plurality of depending serpentine webs spaced apart on the surface of the disc and extending radially thereon, said webs being wedge-shaped in cross section and decreasing in depth from one end toward the other.

14. In combination, with a washing machine tub, a cone mounted therein, and an agitator having a series of water agitating webs provided with downwardly converging walls co-operating with said cone to impart a downward and outward movement to the water in the tub.

15. In combination, with a washing machine tub and a cone mounted therein, a water agitating device having an opening through which the upper portion of said cone projects, said device having radially arranged serpentine webs thereon for imparting a downward and outward movement to the water in the tub and said device and cone being relatively movable vertically.

16. In combination with a washing machine tub and a clothes guard therein, an agitating device encircling said guard and having a vertical movement with respect

thereto, and a plurality of radially extending webs wedge-shaped in cross-section mounted on said agitating device and cooperating with said guard to impart a downward and outward movement to the water in the tub.

17. In combination, with a washing machine tub, a drive shaft, a block having a socket to receive said shaft, a cap fitting said block to turn therewith and having a vertical movement on said block, a finger grip connected with said block for raising it and said cap and an agitating device supported by said cap to turn therewith and having means for imparting a downward movement to the water in the tub.

18. In combination, with a washing machine tub, a drive shaft, a disc having an opening therein, a yoke on said disc overhanging said opening, a cap depending from said yoke within said opening, a block having a socket to receive said drive shaft whereto a rocking movement is imparted by the movement of said shaft, said cap fitting said block to rock therewith, and having freedom of vertical movement thereon, and means mounted on said disc for forcing the water through the meshes of the clothes.

19. In combination, with a washing machine tub, a drive shaft, a disc having an opening therein, a yoke on said disc overhanging said opening, a cap depending from said yoke within said opening, a block having a socket to receive said drive shaft whereto a rocking movement is imparted by the movement of said shaft, said cap fitting said block to rock therewith, and having freedom of vertical movement thereon, means mounted on said disc for forcing the water through the meshes of the clothes, and a clothes guard projecting up through the opening in said disc and encircling said block and cap.

In witness whereof I have hereunto set my hand this 20th day of February 1922.

HERMAN C. HIRSCHY.

* * * * * * * *

1730 (Part of Defendant's Exhibit 35.)

British Letters Patent No. 18,202 to Eliza Jane Jardine, dated October 1, 1892.

A copy of British Letters Patent No. 18,202 to Eliza Jane Jardine, dated October 1, 1892, was made a part of the transcript at this place, but is omitted from the printed record for the reason that a copy of said Letters Patent heretofore appears in this printed record as a part of Defendant's Exhibit 13 on page 1047 of the printed record.

(Part of Defendant's Exhibit 35.)

French Letters Patent No. 363,514 to E. F. Henin, et al., dated August 2, 1906, and Translation Thereof.

A copy of French Letters Patent No. 363,514 to E. F. Henin, et al., dated August 2, 1906, and Translation thereof, were made a part of the transcript at this place, but are omitted from the printed record for the reason that a copy of said Letters Patent, heretofore appear in this printed record as a part of Defendant's Exhibit 13 on page 1073 of the printed record.

1737 Defendant's Exhibit 36 (id)

Record On Appeal Maytag vs. Brooklyn Edison, 6 Vols.

1738 (Defendant's Exhibit 37.)

Bridgeport, Dec. 2, 1932.

Mr. J. M. Wicht—

The statement is made in some of our advertising matter on our washers that the G-E Activator washes by water action alone and also a number of other statements to the effect that water currents are set up by the Activator which have the effect of washing the clothes on a "washboard of clean soap suds".

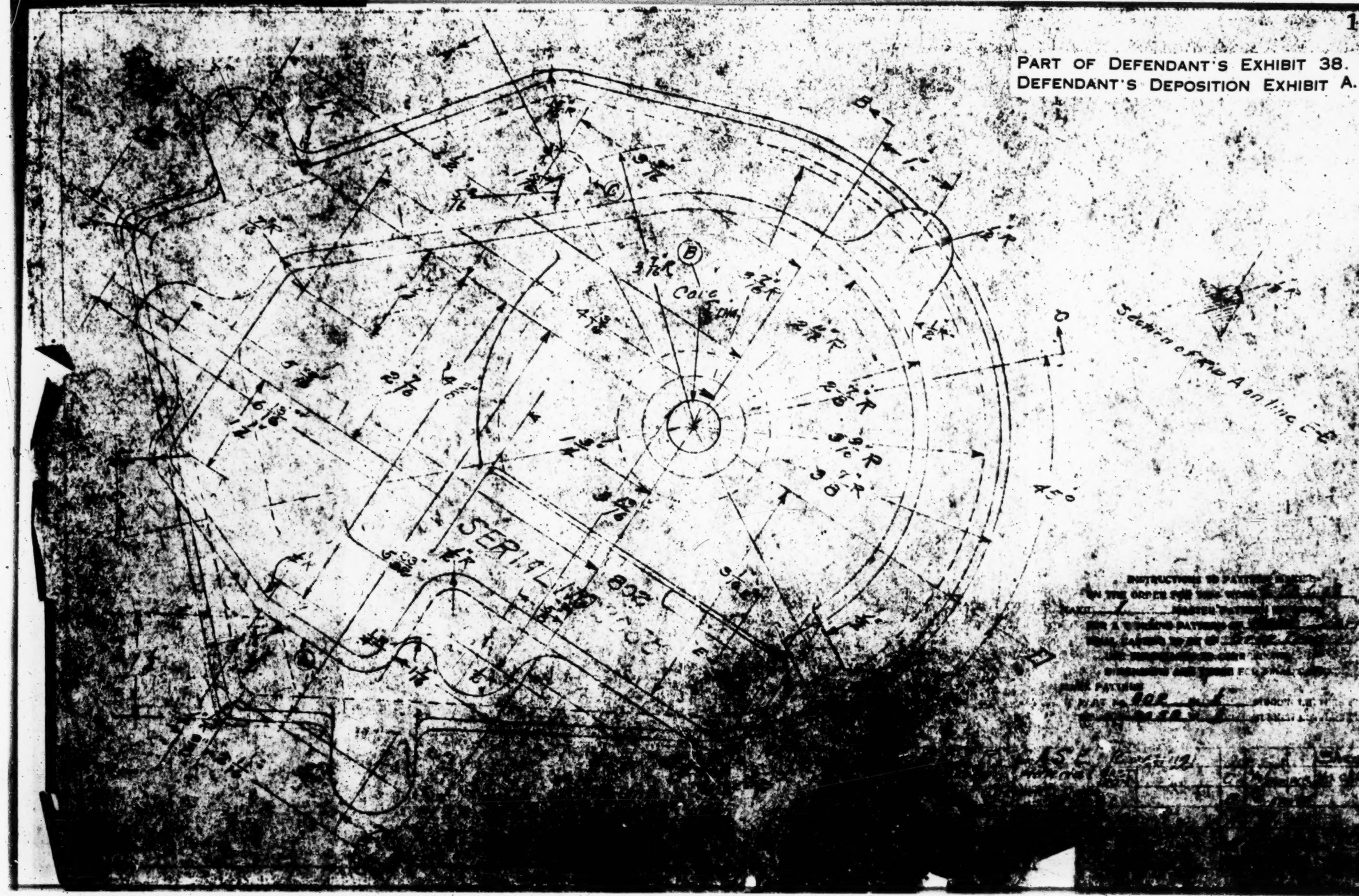
These claims are contrary to the facts and we should revise all of the statements with regard to the Activator so that we do not, in the first place mislead the public; and sec-

ondly, so that any claims made on the Activator shall not get us into conflict with the patent claims of the Maytag Company on the recently issued Snyder patent in which claims are made that washing is done by water action only, which statement we believe to be the reverse of the facts.

D. HAYS

DH:EP
WD Yates
NH Watts

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT A.



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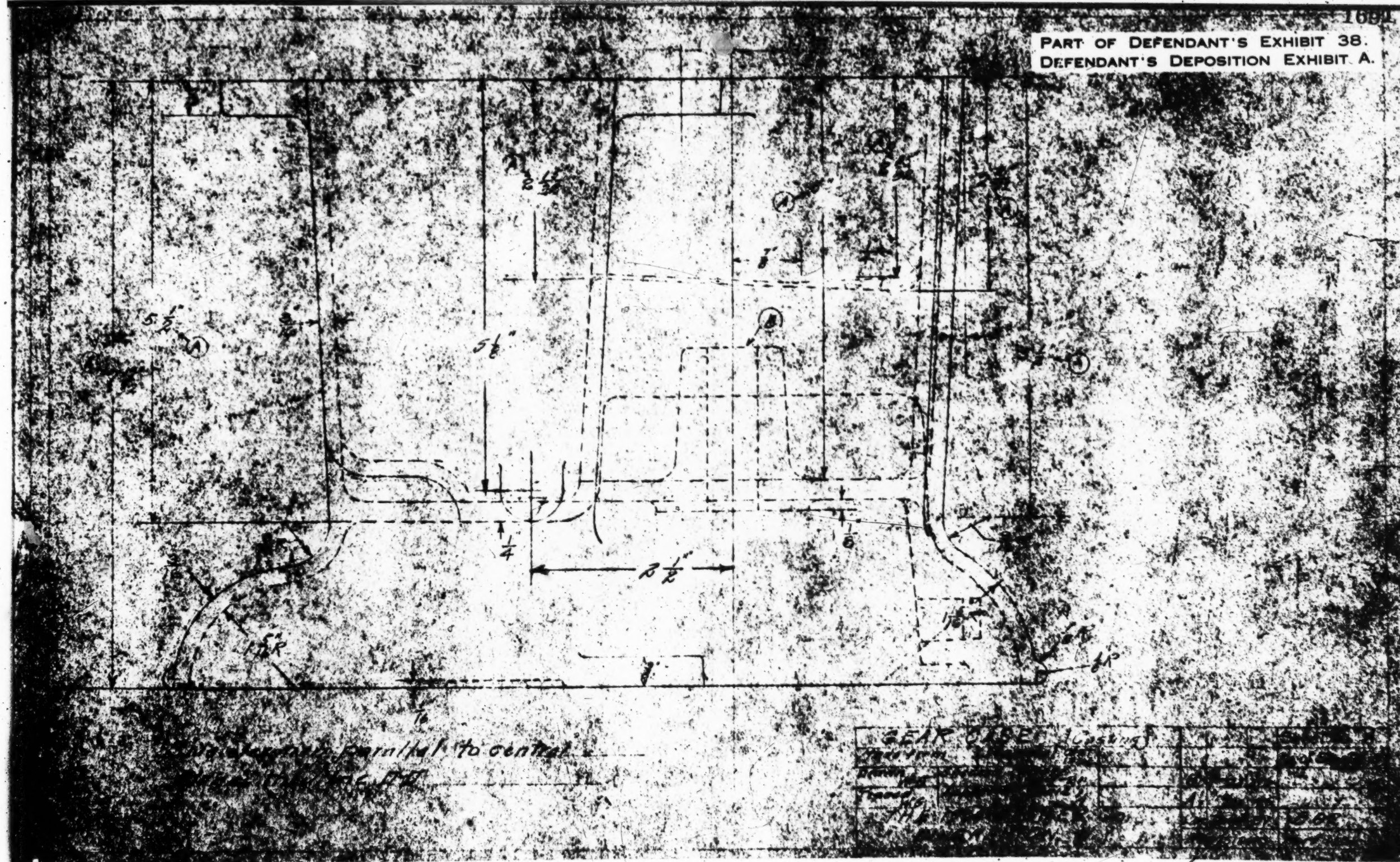
5½"
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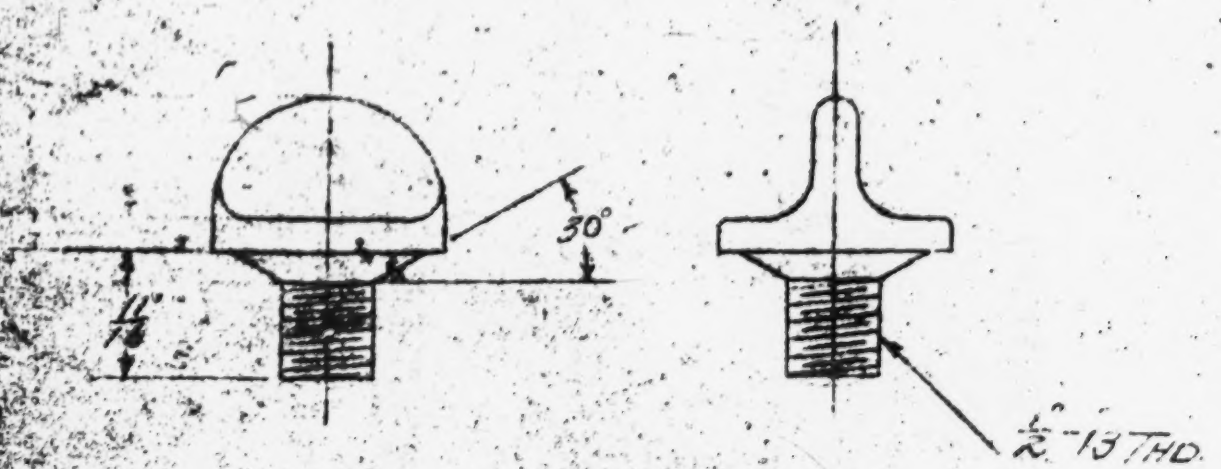
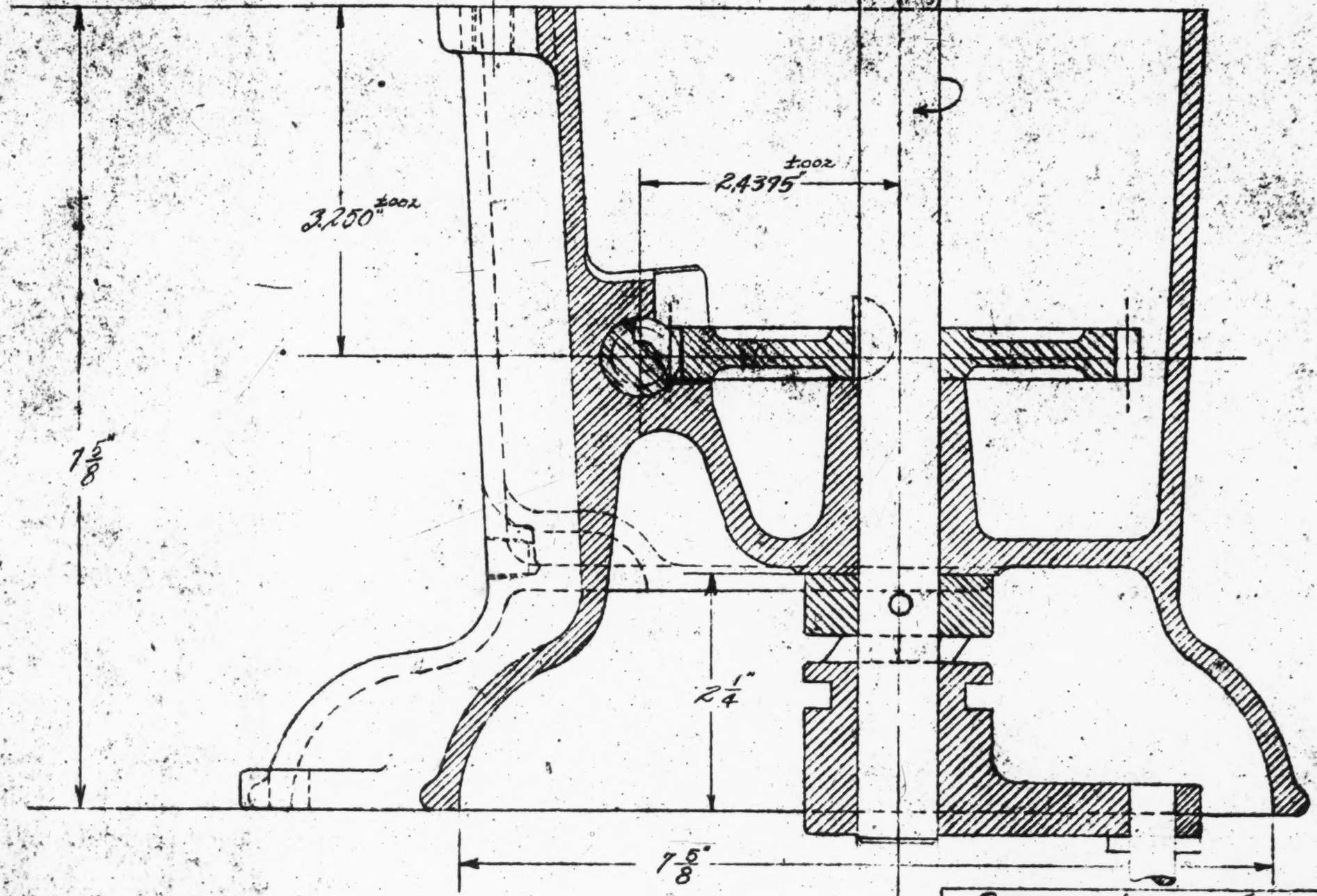
DEFENDANT'S DEPOSITION EXHIBIT A.



AGITATOR THUMB SCREW							
MADE FROM	MATERIAL CAST IRON		WIRE				
DRAWN	CHECKED	DATE 6-20-50	THICK				
TRACED	APPD.	SCALE	DIAM				
THE 1900 WASHER CO. NEWPORT, N.Y.				LOC	DATE	BY	SJSA
				REVISIONS			PART NO

PART OF DEFENDANT'S EXHIBIT 38
DEFENDANT'S DEPOSITION EXHIBIT A.

1095

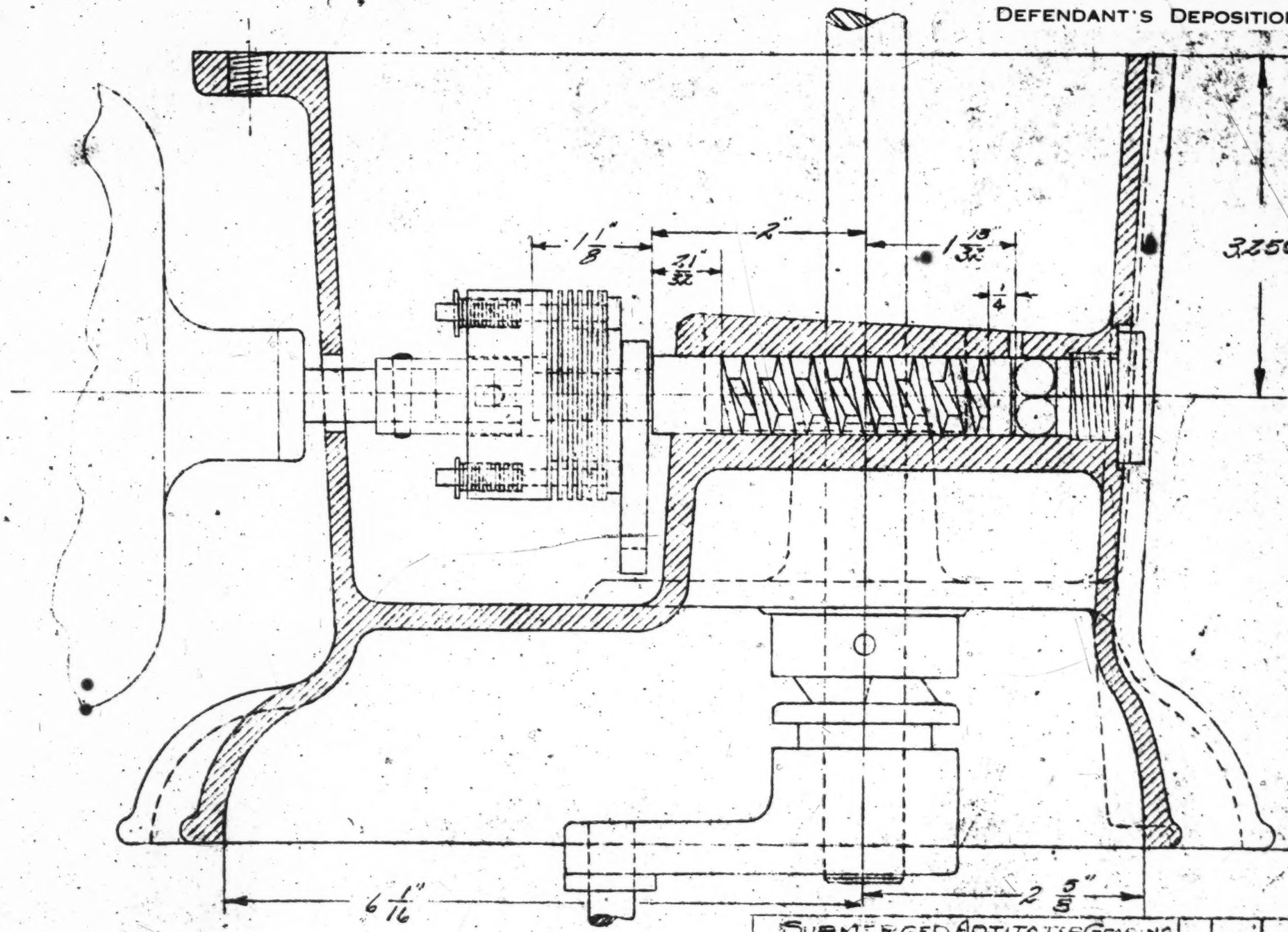


SUBMERGED AGITATOR GEARING			
MADE FROM	MATERIAL		WIDE
DRAWN GJM	CHECKED	DATE 9/22/...	THICK
TRACED GJM	APPRD	SCALE	DIAM

THE 1900 WASHER CO.
BINGHAMTON N.Y.

PART OF DEFENDANT'S EXHIBIT 38
DEFENDANT'S DEPOSITION EXHIBIT

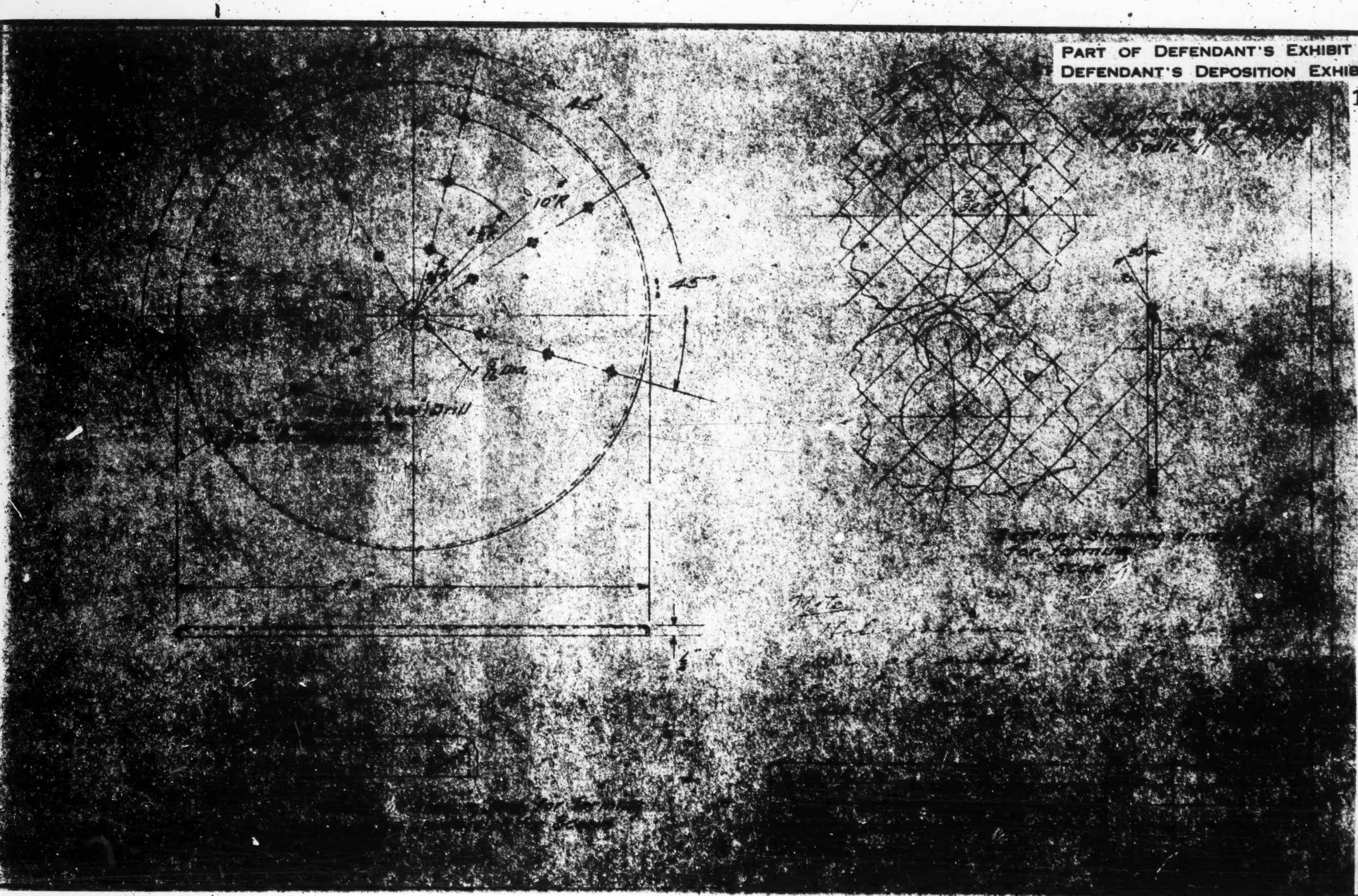
169



SUBMERGED AGITATER GEARING					SHEET NO 2
MADE FROM	MATERIAL		INSIDE		NO OF SHEETS
DRAWN C.G.M.	CHECKED	DATE 8-1-21	THICK		
TRACED C.G.M.	APPR'D	SCALE	DIAM.		
THE 1900 WASHER CO. BINGHAMTON, N.Y.				LOG DATE BY REVISIONS	PART NO

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT A.

1699



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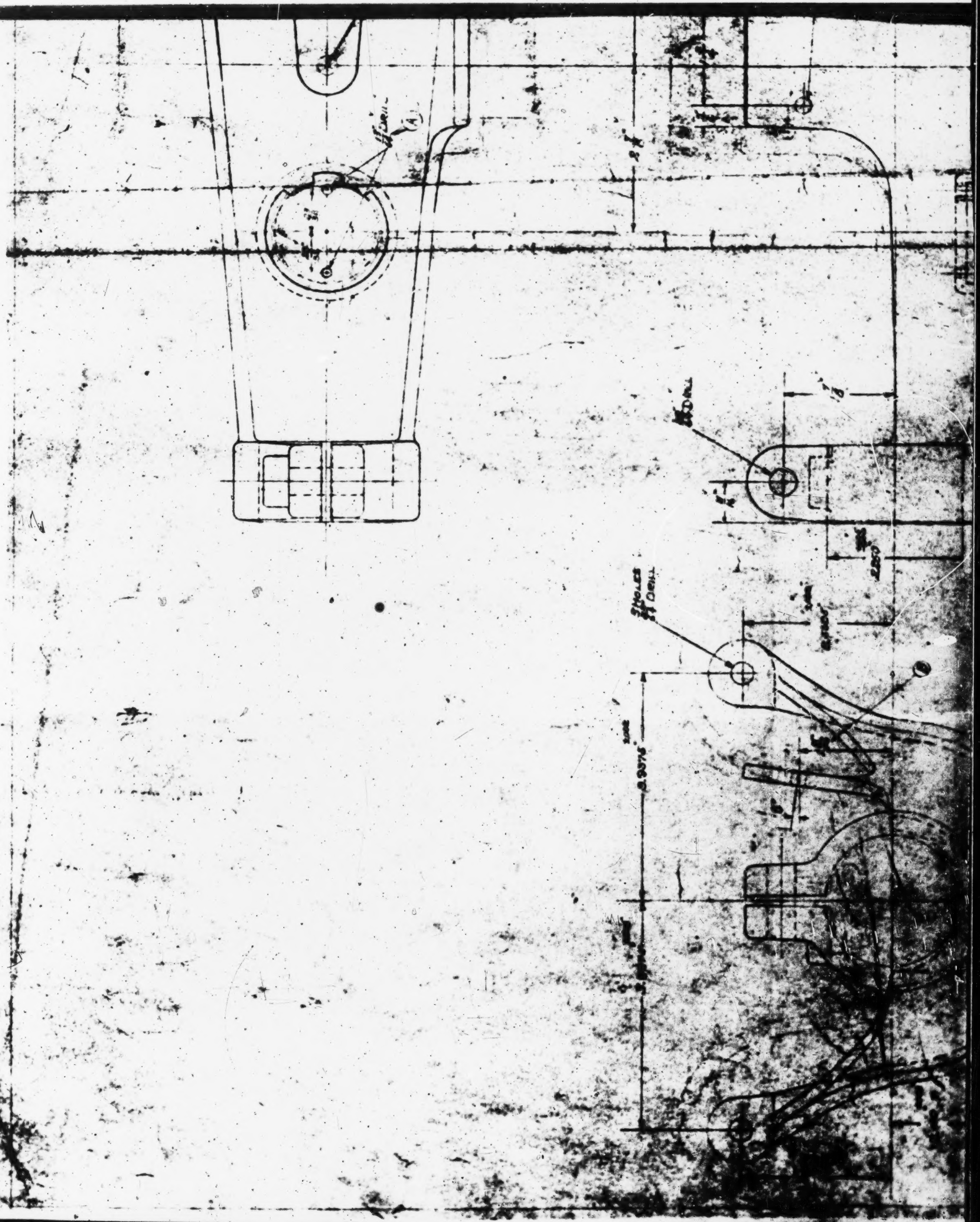
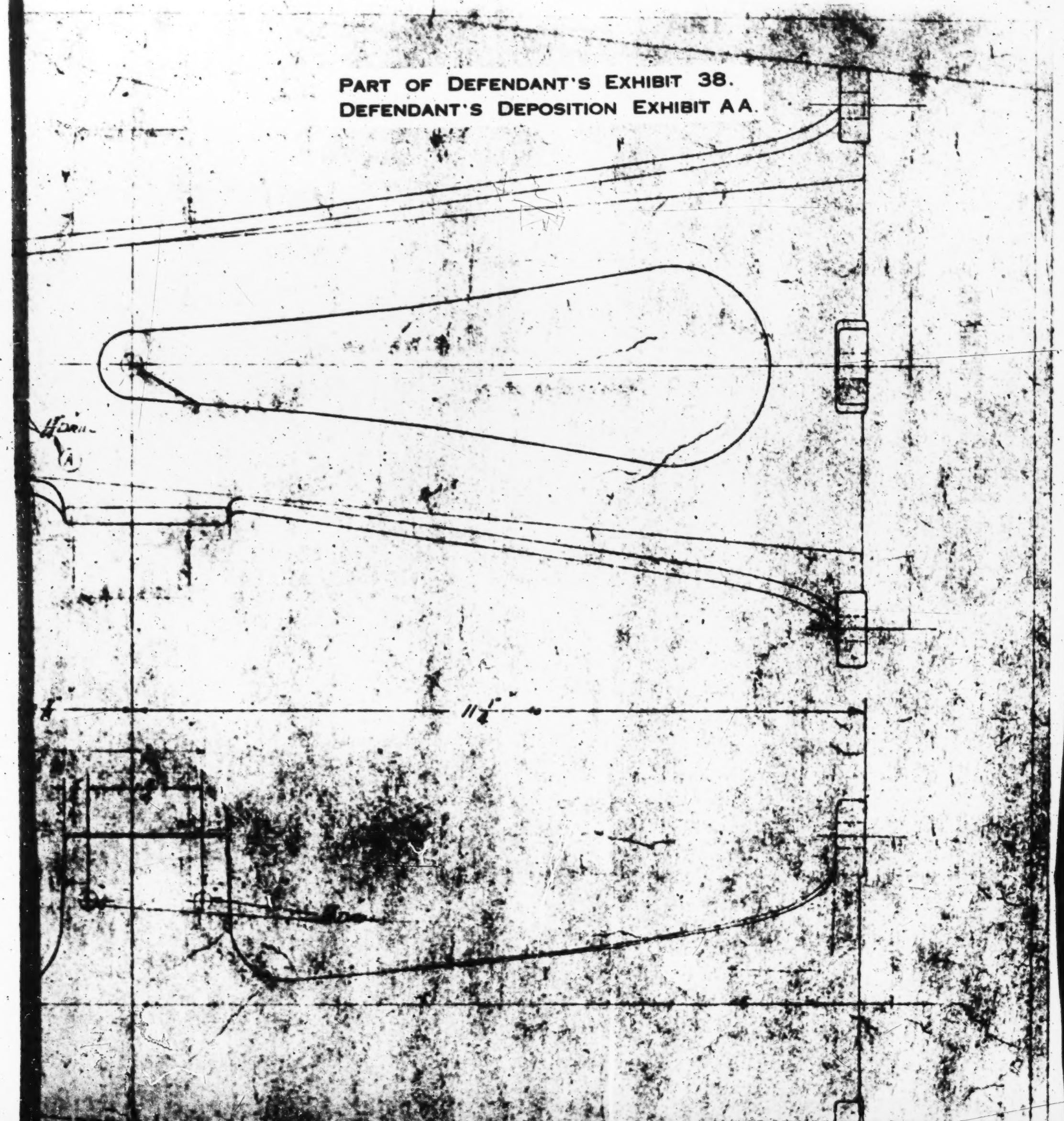
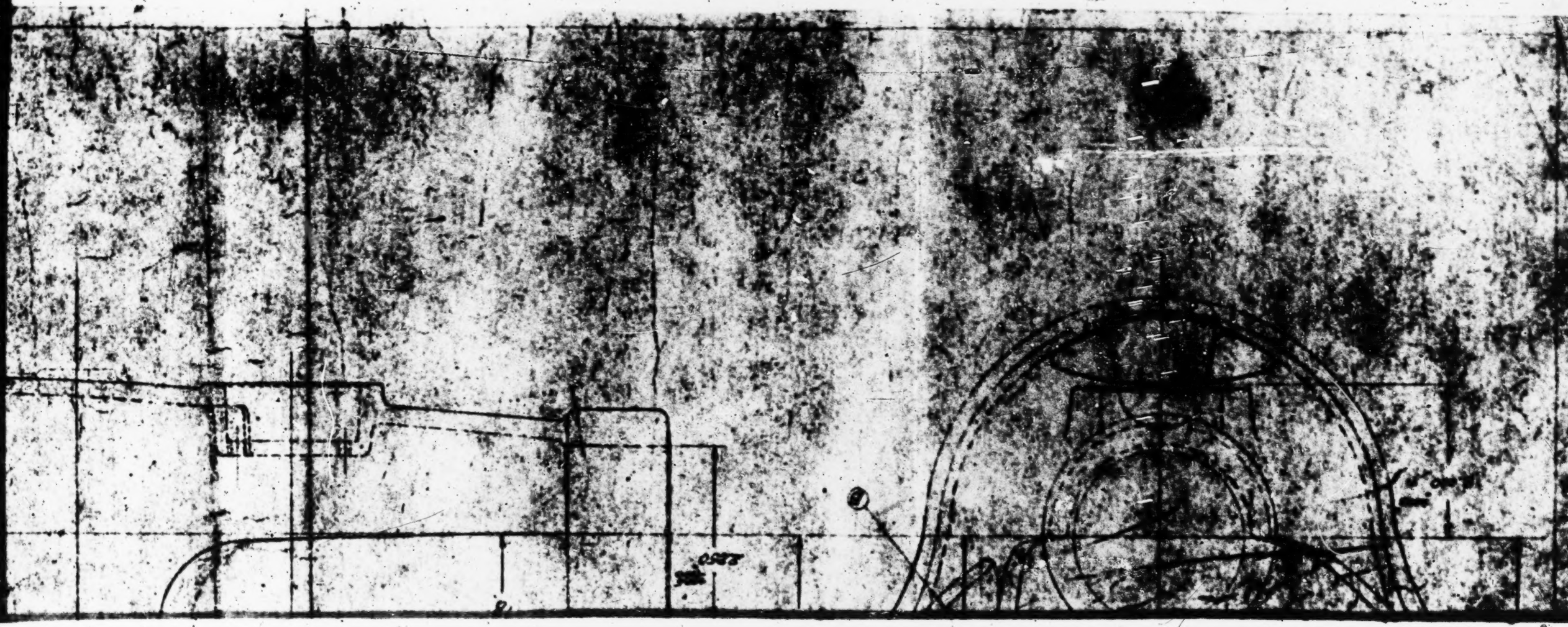
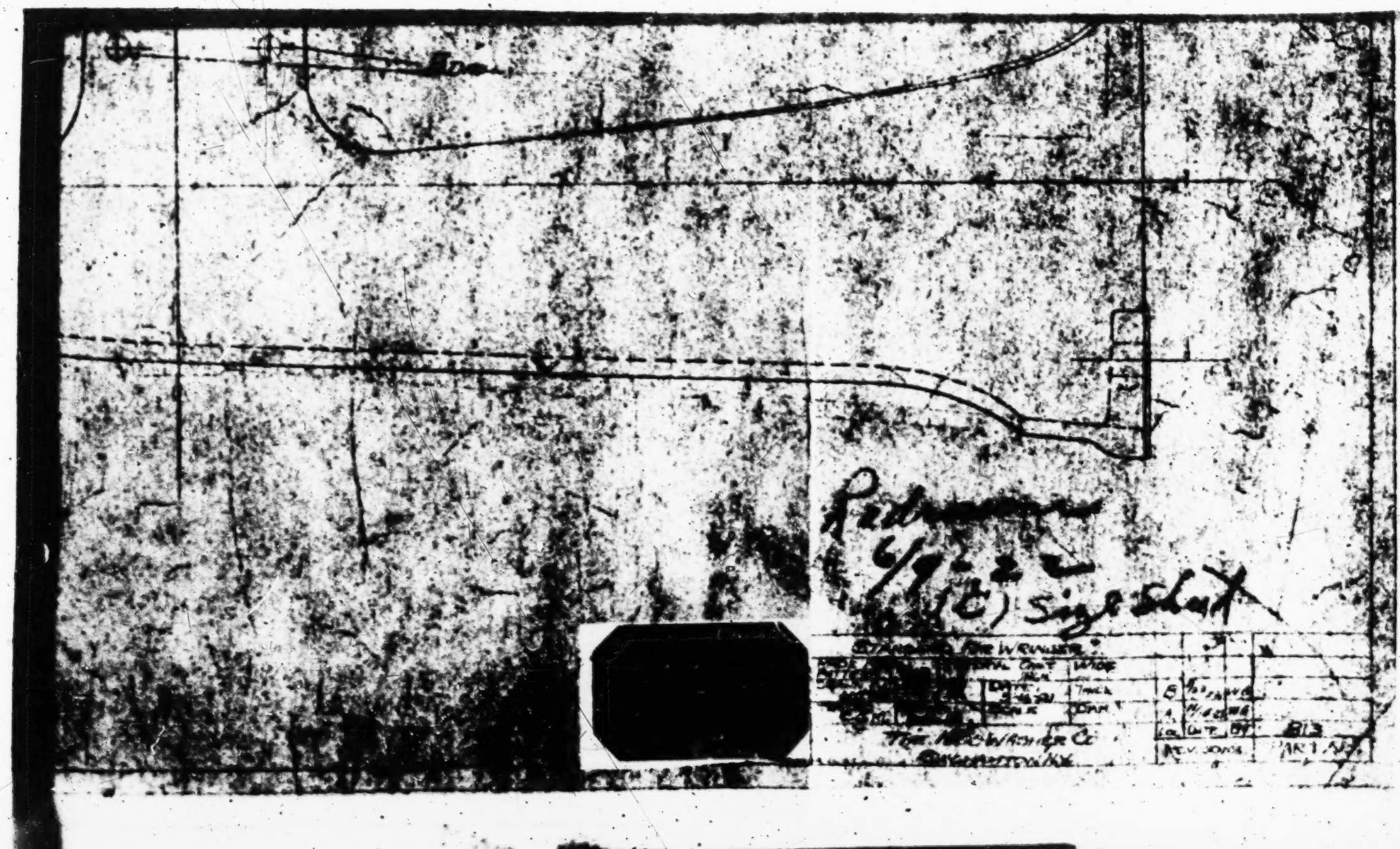


PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT A A.







SECTION ON LINE A-A

PART NO
SERIAL NO 2064

PART OF DEFENDANT'S EXHIBIT 38.
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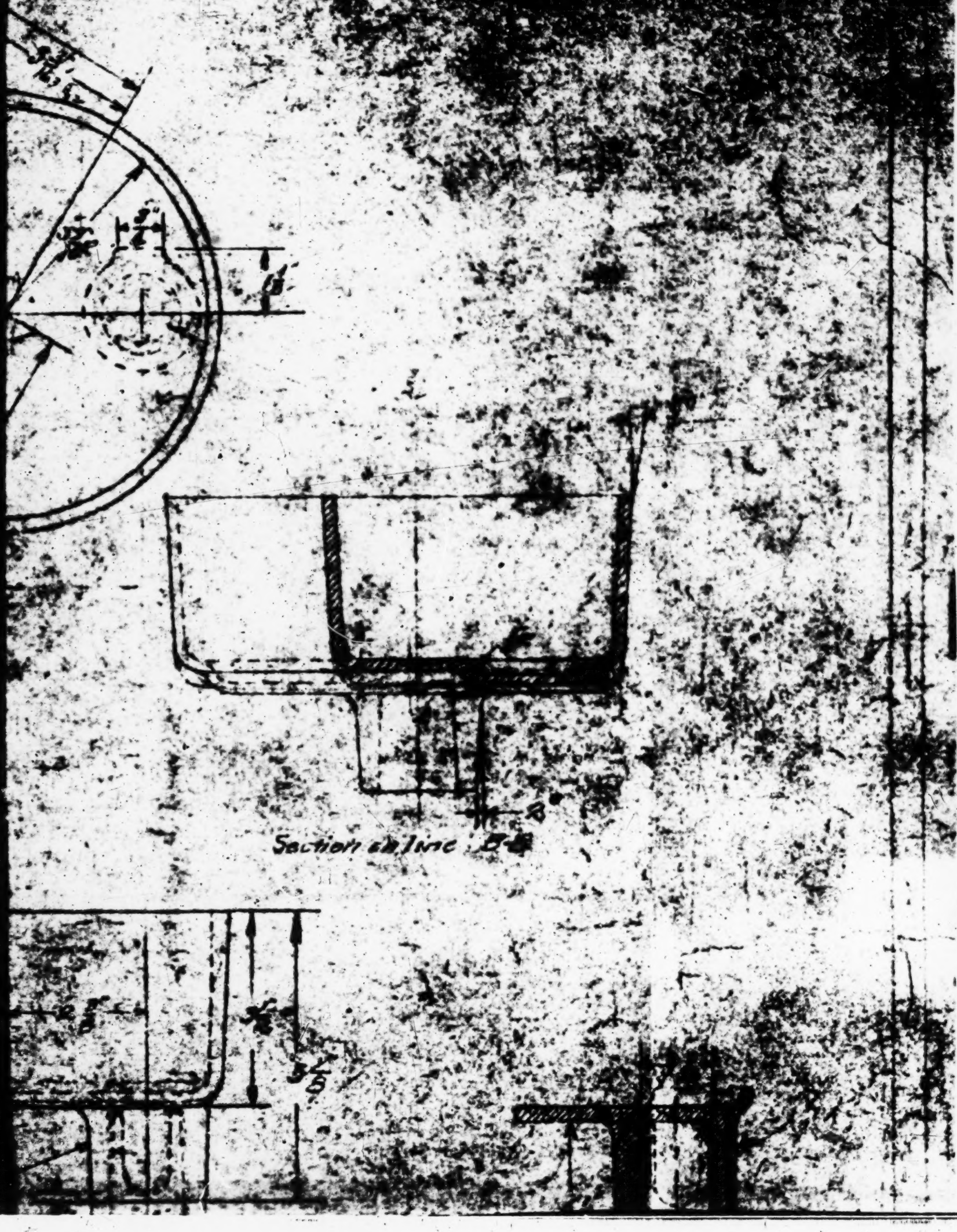

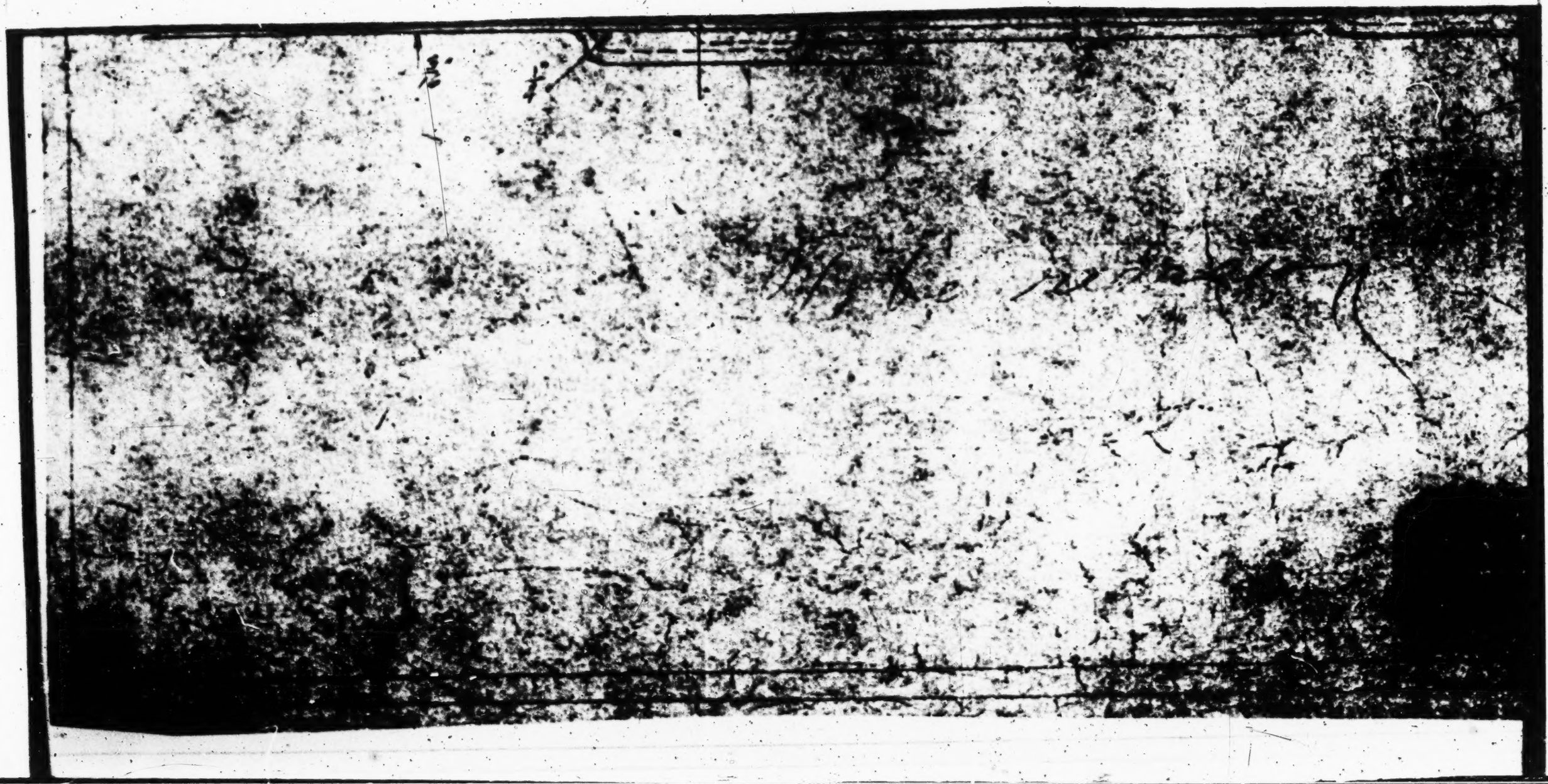

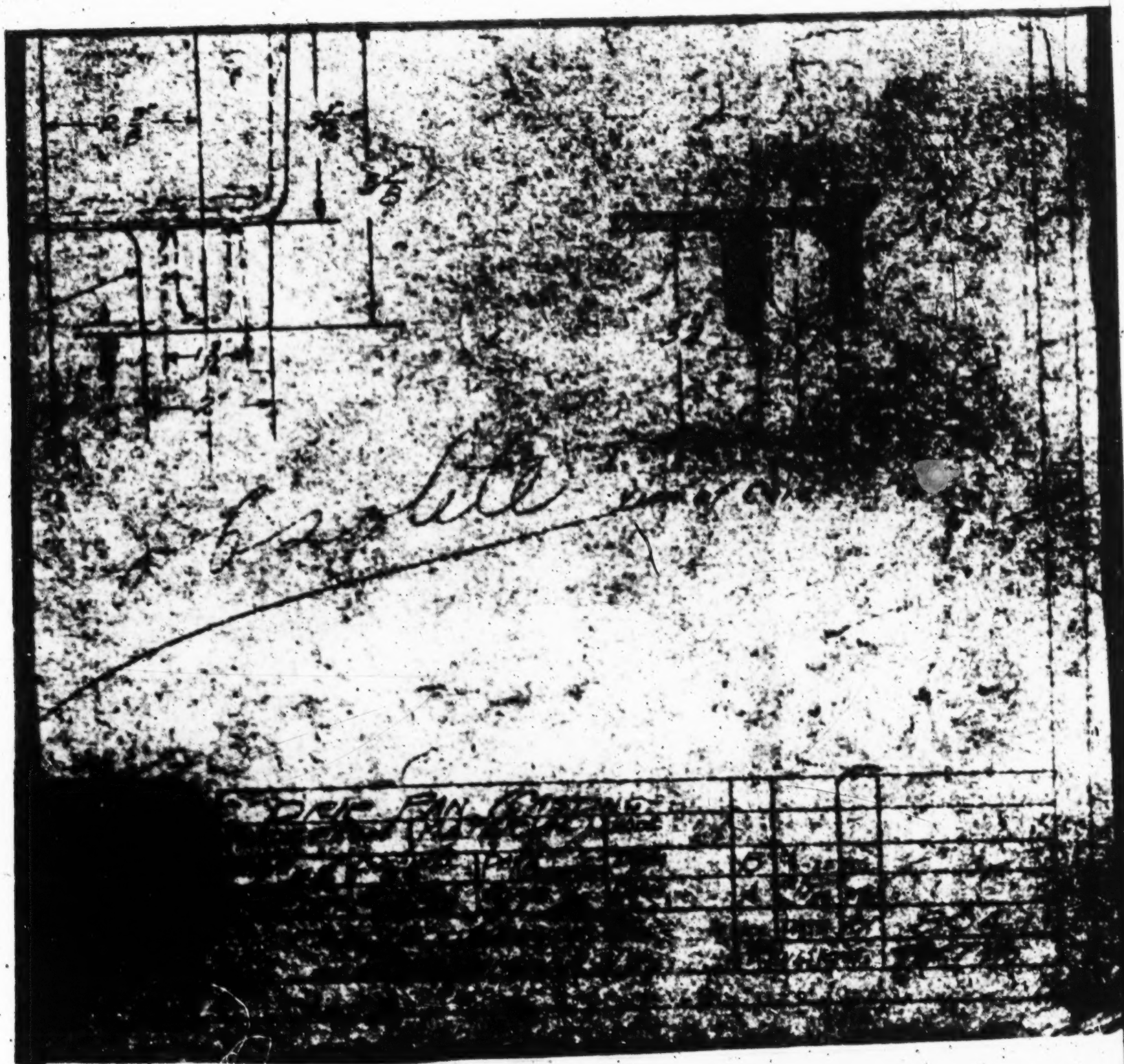

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1748 (Part of Defendant's Exhibit 38—Defendant's Deposition Exhibit 3.)

Letters Patent No. 1,240,826 to G. L. Davis dated September 25, 1917.

A copy of the Letters Patent No. 1,240,826 to G. L. Davis dated September 25, 1917, was made a part of the transcript at this place but is omitted from the printed record pursuant to stipulation of counsel for the reason that a copy of said Letters Patent heretofore appears in this printed record as a part of Defendant's Exhibit 13 at page 1055 of this printed record.

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1749 (Part of Defendant's Exhibit 39—Defendant's Deposition Exhibit 5.)

Letters Patent No. 1,496,305 to H. W. Doughty, et al., dated June 3, 1924.

A copy of the Letters Patent No. 1,496,305 to H. W. Doughty, et al., dated June 3, 1924, was made a part of the transcript at this place but is omitted from the printed record pursuant to the stipulation of counsel for the reason that a copy of said Letters Patent heretofore appears in this printed record as a part of Defendant's Exhibit 13 at page 1039 of this printed record.

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1750 (Part of Defendant's Exhibit 38—Defendant's Deposition Exhibit 6.)

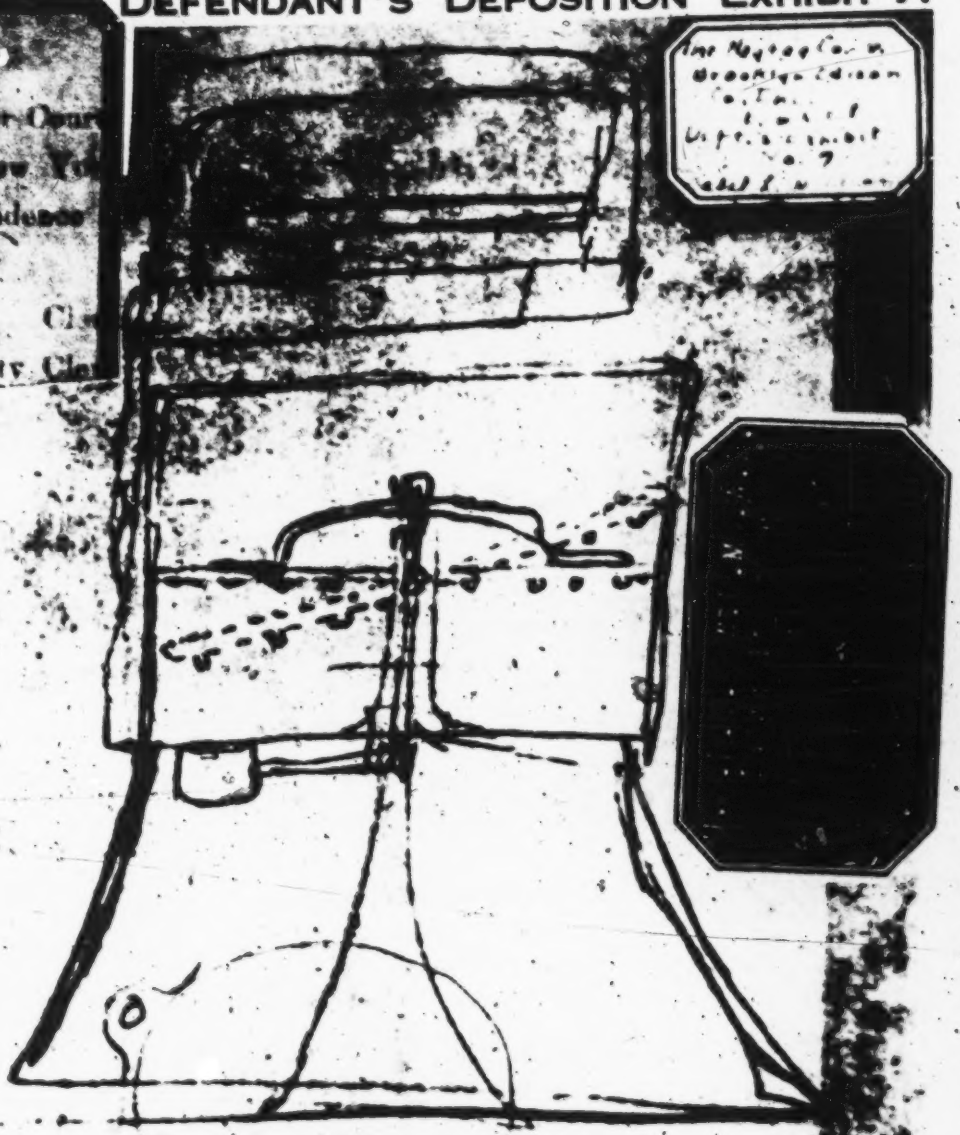
Letters Patent No. 1,748,442 to G. L. Davis, dated February 25, 1930.

A copy of the Letters Patent No. 1,748,442 to G. L. Davis, dated February 25, 1930, was made a part of the transcript at this place but is omitted from the printed record pursuant to stipulation of counsel for the reason that a copy of said Letters Patent heretofore appears in this printed record as Defendant's Exhibit 6 at page 995 of this printed record.

1706

PART OF DEFENDANT'S EXHIBIT 38,
DEFENDANT'S DEPOSITION EXHIBIT 7.

United States District Court
Eastern District of New York
Exhibit 7 in evidence
Date 2/27/33
Clerk
Deputy Clerk



Agitator Electric
new design
E. T. W. B
2/9/20

Deletion of the revolving tilted
agitator. adopted 9/16/20
Hyer.

PART OF DEFENDANT'S EXHIBIT 38,
DEFENDANT'S DEPOSITION EXHIBIT 9.

U.S.D.C. W.D.Mo.W.D.
In Equity 2892.
Defendants } Ex #9
Deposition }
J.A. Friel

-X-9

Def. Ex 9
1-24-38

9/30/20

- Water
Requirements -
Less Price than Cataract
Smaller capacity
Motor underneath entirely protected from water
Simple mechanism
Copper tube
Direct drive
Slip joint -
Perhaps unsuitable for other purposes where valve
Table
Quiet
Self regulating

PART OF DEFENDANT'S EXHIBIT 38,
DEFENDANT'S DEPOSITION EXHIBIT 9.

To Greene 11/17/20

Washer-Agitator type
Metal tub
Direct connected motor
Metal wringer

PART OF DEFENDANT'S EXHIBIT 38. 1713
DEFENDANT'S DEPOSITION EXHIBIT 9.

203

203

Jan. 11, 1911.

HLB

Advertising, etc.

Mr. W. Lee Holmes,
328 Phelan Building,
San Francisco, Cal.

Dear Mr. Holmes:

In regard to your letter of the 3rd, we might just as well face the fact, Mr. Holmes, that on the basis of 40, 5 and 2 discount there is going to be no possibility of an advertising allowance. Even on the Cataract washer at the present cost of material this discount plus our selling expense brings the machine to a place where there is no profit unless we can get a real volume--I don't mean merely from Dohrmann but from all over the whole country. If we can get a big volume of sales then our overhead selling expense comes down and of course that's what I have in mind on this discount.

I have not written you before because I thought it wasn't important, but on the Agitator machines the discount of 40 and 5 and 2 brings the price to Dohrmann on No. 1 Agitator to less than the factory cost, allowing nothing for overhead or selling. The reason I am not paying any attention to this is that the New Agitator which we are developing is ready we will place a price on it which will take care of this condition and we will drop the old Agitator. Inasmuch as this will be a matter of only two or three months I didn't think it best to take any exception to the contract on this point but to let it go.

I have just this moment received your telegram in regard to Thos. A. Gaynor of the Seattle Electric Washer Company and I believe as you do that this will be to our advantage.

Yours very truly,

The "1900" Washer Company,

Mr. Barker e

General Manager.

203

Jan. 15, 1921.

HLB

Cabinet Type Machine.

Mr. W. Lee Holmes,
323 Phelan Building,
San Francisco, Cal.

Dear Mr. Holmes:

I have your favor of the 11th.

In regard to the new machine, I can now state positively to you that it will not be a cabinet type machine. These movements seem to originate in the East and move west and they reach California about a year afterward. Good times and bad times follow this course and I guess it's just the same way with washing machines. Six months ago the Eastern dealers were talking about an enclosed machine and we had made up our minds that it would be necessary to build one but today all the big dealers in the East are opposed to the cabinet machine. We haven't a single big store that I can think of now that advocates it. They do advocate a beautiful machine and one that is a safe machine, that is, with all dangerous points enclosed, but they do not want the cabinet so you can be reasonably sure that we are not going to build a cabinet machine.

Now, in regard to the new machine I do not think there is any chance of it's getting out before the latter part of next summer. If Mr. Crary had lived it would have been out about the first of June but Mr. Crary's death made quite a little change financially. It will take quite a large amount of money to put the new machine on the market and while the estate is in the hands of an executor and until some definite steps are taken by him we don't want to borrow the money to put this machine on the market. The consequence are that we are not pushing it as we would otherwise. However, it will be out, I believe, the latter part of the summer.

Business is picking up. I know that it has been so with us since the first of December and I had a letter from Mr. Seitz, Secretary of the Washing Machine Mfrs. Association, in which he says that business generally in washing machine circles is picking up. He didn't mention just who but he is around visiting different factories and evidently things are going well with the other manufacturers as they are with us.

Yours very truly,
The "1900" Washer Company,

Mr. Barker G

General Manager.

PART OF DEFENDANT'S EXHIBIT 38,
DEFENDANT'S DEPOSITION EXHIBIT 9.

7 26 8 1921

Test of Whirlpool Washer

Washing	Lbs	Oz.	Gross Wt.
White clothes	9	6	
Colors	1	14	
Rugs	2	14	
Canvas	4	2	
	18	- 3	Total.

Temperature of water in pail as drawn from faucet 136 - 130° F. 7 1/4 gal. pails of water used
After putting in tub 126°

		Suds		
White clothes	run 20 min	& Rugs added	finish	118°
Colors	10			115°
Rugs	20	+1		110°
Canvas	45	+3		100°

Deep cities used.

Washing quite satisfactory.
Some tendency with white clothes to stay in center without much change in position. The above quantity of white clothes was about all that could be accommodated at one time and it is something to be determined.

PART OF DEFENDANT'S EXHIBIT 38,
DEFENDANT'S DEPOSITION EXHIBIT 9.

Whirlpool washer. 2/5/21

whether or not half the quantity
run half the time would not give
better satisfaction.
With a small quantity the agitation
and change in position of the clothes was
much more rapid.

PART OF DEFENDANT'S EXHIBIT 38,
DEFENDANT'S DEPOSITION EXHIBIT 9.

1721 703

Feb. 16th, 1911.

HLB

San Francisco Sales Meeting.

Mr. W. Lee Holmes,
323 Phelan Building,
San Francisco, Cal.

Dear Mr. Holmes:

I have your letter of the 10th in regard to San Francisco.

I am glad that you had a meeting of the salesmen of the Dohrmann Commercial Company and Mr. Bush I know can give a very fine talk. I have not heard a word from Bush except your letter and this is the first intimation I have received that he is coming back East. What do you know about him?

In regard to the Copper Agitator, I wish that we had this machine ready for market in the improved form. I believe we will have it within the next couple of months. In order to be sure of our ground we have built three new models and we are going to have a meeting shortly and make a decision as to which model is the best and then go ahead with it. We have really turned out one model which is a little different from anything I had any idea of and it looks like a crackerjack. We can build a wonderful and a beautiful machine at a reasonable price. When we make the price it will be sufficient so that we can give the jobber 40, 5 and 2.

Yours very truly,

The "1900" Washer Company,

Mr. Barker c

General Manager.

PART OF DEFENDANT'S EXHIBIT 38,
DEFENDANT'S DEPOSITION EXHIBIT 9.

1723 203

Feb. 17, 1921.

HLB New Washer.

Mr. W. Lee Holmes,
345 Phelan Building,
San Francisco, Cal.

Dear Mr. Holmes:

I have your letter of the 11th in regard to the new washer.

I do not believe you had better pay any attention to this new washer. We had thought that we would bring it out this summer but Mr. Behan took one of these new machines to his home and while the machine looks fine and the principle is good he is convinced that we have got to make quite a lot of changes before it is going to be 100 per cent. The result is that we are going to build a limited number of these machines and place them in the homes of our own people where they can be thoroughly tested out and that is going to take time, so I think you had better forget the new [illegible] for a number of months at least.

We are working, however, on the new Agitater and it looks better all the time. This is going to be a real machine, one that is going to satisfy the public and will be sold at a reasonable price. When this machine comes out it may satisfy the people that it's the machine they have been told about.

Yours very truly,

The "1900" Washer Company,

Mr. Barker c

General Manager.

PART OF DEFENDANT'S EXHIBIT 38,
DEFENDANT'S DEPOSITION EXHIBIT 9.

The "1900" WASHER COMPANY
INCORPORATED

1725

T. B. CRARY, President
H. L. BARKER, General Manager

Manufacturers of the Celebrated
"1900" WASHERS and WRINGERS

Member American Hardware Manufacturers Association

Cable Address
"HIRSUTISM" BINGHAMTON
Motive Power Code Used

In reply refer to attention of

Binghamton, N.Y.
March 23, 1921.
SUBJECT

Messrs Fish, Richardson & Neave,
5 Nassau Street,
New York City.

Gentlemen:-

Attention Mr. Merrell E. Clark.

In relation to the washing machine with the submerged agitator which you saw on March 14th.

We are having a sketch prepared showing the principle of this machine and will either enclose it with this letter or forward it to you soon. From this sketch and the following description we believe that you can get an accurate ideaof the features which we believe this machine embodies.

The principal structural features consist of:

A tub - open at the top (or closed with a light weight cover as desired).

A shaft - projecting a short distance into the tub from the center of the bottom.

An agitator - carried on the end of the shaft just inside the bottom of the tub.

Vanes or ribs - peculiarly arranged on the upper surface of the agitator.

A motor.

A connection - between the motor and the agitator, by which the latter is given a reverse motion of revolution upon its shaft (about one-half of a revolution as constructed at present).

"I'll jump in and do the work"

A wringer - also connected to the motor.

Means for starting and stopping the wringer or agitator.

And a framework for maintaining the parts in a suitable relation.

1701

PART OF DEFENDANT'S EXHIBIT 38,
DEFENDANT'S DEPOSITION EXHIBIT 9.

No. 2 - F.,R.AN.

When the water is placed in the tub and the agitator is started, the vanes upon its upper surface tend to set up a rotation in the mass of water, especially in that portion of the water immediately above the agitator. This rotating motion tends to throw the water toward the circumference of the tub by centrifugal action, thus drawing it out of the center at the bottom, raising it at the circumference and completing the circulation by returning to the center downwardly along the upper surface. This action of the water continues as long as the agitator moves in one direction. When the motion of the agitator is reversed, the motion of the water is broken up, but is reestablished at once by the resumed motion of the agitator. There are certain other motions imparted to the water by the vanes of the agitator, which modify but do not prevent the circulation above described.

When clothes to be washed are placed in the water the circulation of the water is retarded, but is still apparent in the gradual change in the position of the clothes while they are being acted upon.

An especial point of advantage of the submerged agitator machine is that the clothes being washed are not restrained at the top but are free to move in various directions as they are acted upon by the water.

Another advantage results from the avoidance of an action which occurs in the top agitator machine which causes the agitator to sink in the water and restrict the free movement of the clothes. The reason for this objectionable action is this: the vanes on the agitator when in motion cause the water to flow from the center toward the side of the tub. Consequently, the center is lowered and the agitator, which is only held in position by floating upon the water, or by the supporting effect of the clothes, is drawn down with the result of compressing the clothes, restraining their free movement and increasing the power required to operate the washer.

The agitator of the submerged type is also constructed in a novel manner. Previously such agitators have had vanes symmetrically arranged and radiating from the center. For this machine it is found preferable to arrange the vanes about a point other than the center, or to use some other unsymmetrical arrangement, as for example, by omitting one of the vanes. The purpose accomplished by this arrangement is to cause the clothes to be operated on in an irregular manner and prevent them from remaining in a state of rest at the center of the tub.

The foregoing description relates to the novelty in construction and operation. In addition to this, there are certain advantages from a manufacturing, commercial and operating standpoint.

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 9.

No. 3 - F.,R.&E.

The use of the submerged agitator allows the use of a lighter construction at the top of the tub, inasmuch as it is not necessary to provide a mounting for the transmission of the necessary power.

The absence of this heavy structure is an advantage, in that it removes the possibility of injury to the operator in case it should fall unexpectedly to its closed position.

In operation considerable time can be saved, inasmuch as wringing can be commenced while washing is continuing, so that pieces which are most soiled can have the benefit of a longer washing without longer time being needed for the whole operation.

The open top provides means for doing any hand rubbing which is sometimes necessary for particularly soiled pieces. A hand rub board can even be used without having any top mechanism to interfere.

The operation of washing is always in full view, or may be made so by the removal of a light cover.

Since the power transmitting mechanism is all below the tub the center of gravity is very much lower and the whole machine is much more stable.

Since the tub has no operating mechanism connected with it, it can be removed in case of injury without trouble.

If there is anything in this description which is not entirely clear, or any other points about which you wish information, we shall be very glad to write you further.

Yours very truly,

The Nineteen Hundred Washer Co.

H W Doughty
Engineer.

HWD:LS

PART OF DEFENDANT'S EXHIBIT 38,
DEFENDANT'S DEPOSITION EXHIBIT 9.

The "1900" WASHER COMPANY
INCORPORATED

T. B. CRARY, President
H. L. BARKER, General Manager

Manufacturers of the Celebrated
"1900" WASHERS and WRINGERS

Member American Hardware Manufacturers Association

Cable Address
"NINHUNWASH" BINGHAMTON
Western Union Code Used

In reply refer to attention of

Binghamton, N.Y.
March 25, 1921.
SUBJECT

Messrs Rish, Richardson & Neaves,
5 Nassau Street,
New York City.

Gentlemen:-

Attention Mr. Merrell E. Clark.

We are enclosing herewith blue prints, our sketch No. 522, which we promised to send you in our letter of March 23rd.

Very truly yours,

The Nineteen Hundred Washer Co.

H. W. Doughty
Engineer.

HWD:LS

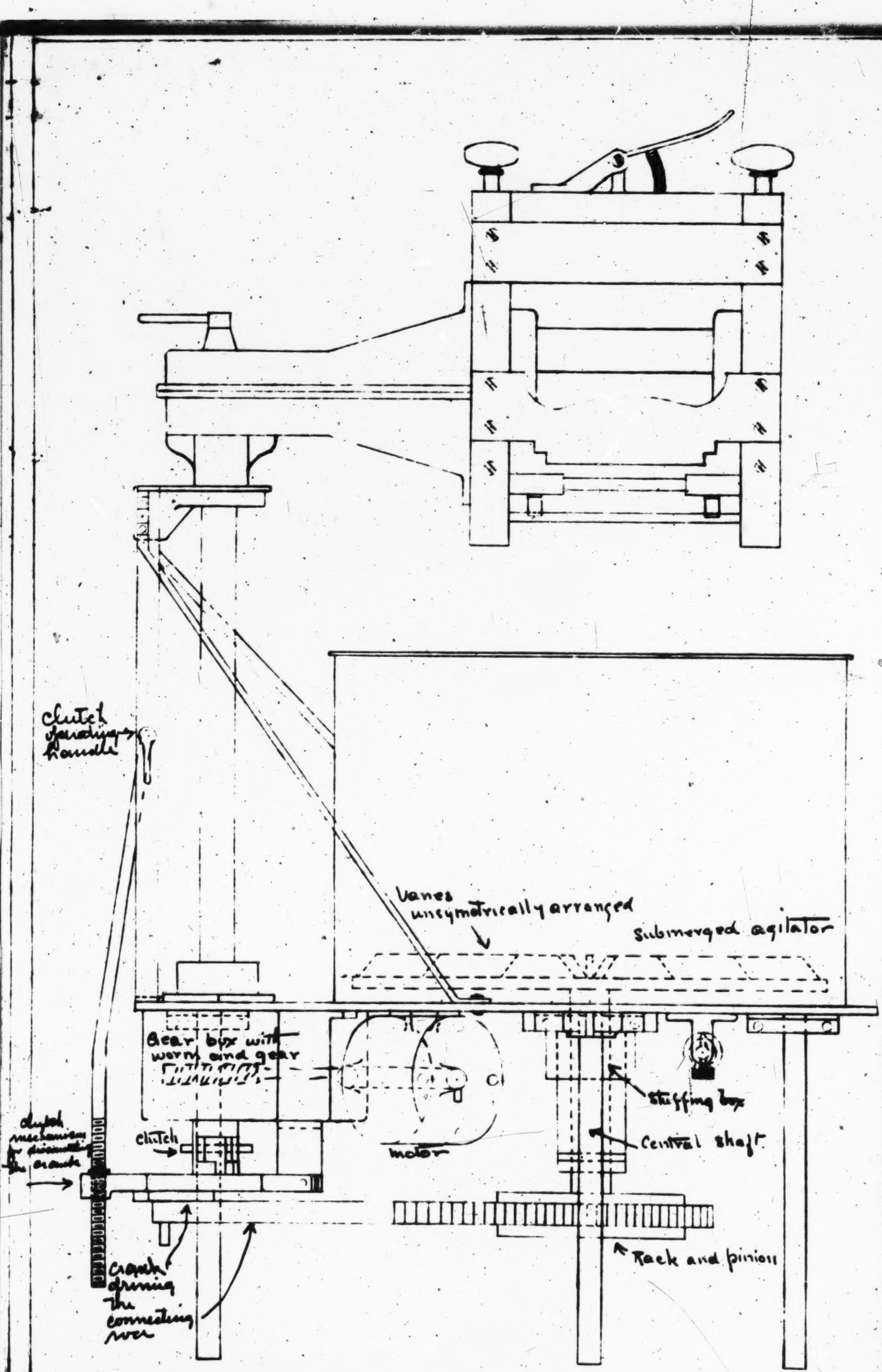
Also 1 print - sketch No 521

"I'll jump in and do the work"

* * * * * * * *

1765 (Memorandum Relating to Drawing Attached to Foregoing Letter.)

The blueprint annexed to the foregoing letter is the same as the drawing reproduced at page 1733 infra, and labeled "Defendant's Deposition Exhibit 9A".



PART OF DEFENDANT'S EXHIBIT 38,
DEFENDANT'S DEPOSITION EXHIBIT 9A.

U.S.D.C. W.D. No. W.D.
In Equity 2892
Defendants Deposition } Ex. No. 94
J. H. Dye

Washing Machine with Submerged Agitator
1900 Washer Co
Binghamton N.Y.
Mar 28 1904

Patent No. 538

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 10.

1735

"1900" WASHERS

DEALERS' CATALOGUE

THE "1900" WASHER CO.
BINGHAMTON, N. Y.

CATALOGUE NO. 10

TO THE TRADE

THE object of this book is to show at a glance a complete equipment of Washing Machines operated by Hand, Water Power, Gasoline Engine or Electricity, and also Wringers and Ironing Machines.

We have tried to make it sufficiently attractive so you will keep it for your files, and give sufficient data in relation to our different types of machines so that in ordering there will be no misunderstanding as to just what you want.

The Family Size cedar tub machines will all wash the same quantity of clothes at a tubful.

The capacity of the Family Size Cataract Electric Washer is about double that of the family size machine with cedar tub. The capacity of the Laundry Size Cataract is about 50 per cent. more than the Family Size.

The prices given are the established prices to the consumer. We have a special price list which we furnish to the trade upon request.

THE "1900" WASHER CO.

Binghamton, N. Y.

Nov. 1, 1919.

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 10.
1739

The "1900" Gravity Washer

PRICE ~~$15.~~ 13 CASH DISCOUNT $3.

Shipping Weight, 18 lbs.

PART OF DEFENDANT'S EXHIBIT 38. 1741
DEFENDANT'S DEPOSITION EXHIBIT 10.

The "1900" Junior Washer

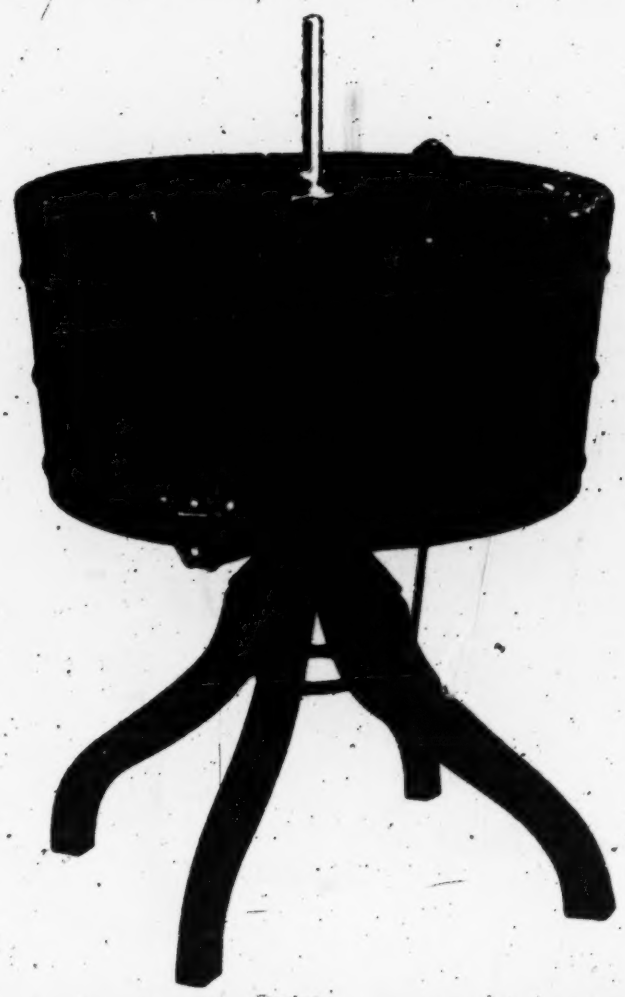
PRICE ~~$13~~ 23. CASH DISCOUNT $3.

Shipping Weight, 79 lbs.

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 10.

1743

The "1900" Standard Washer



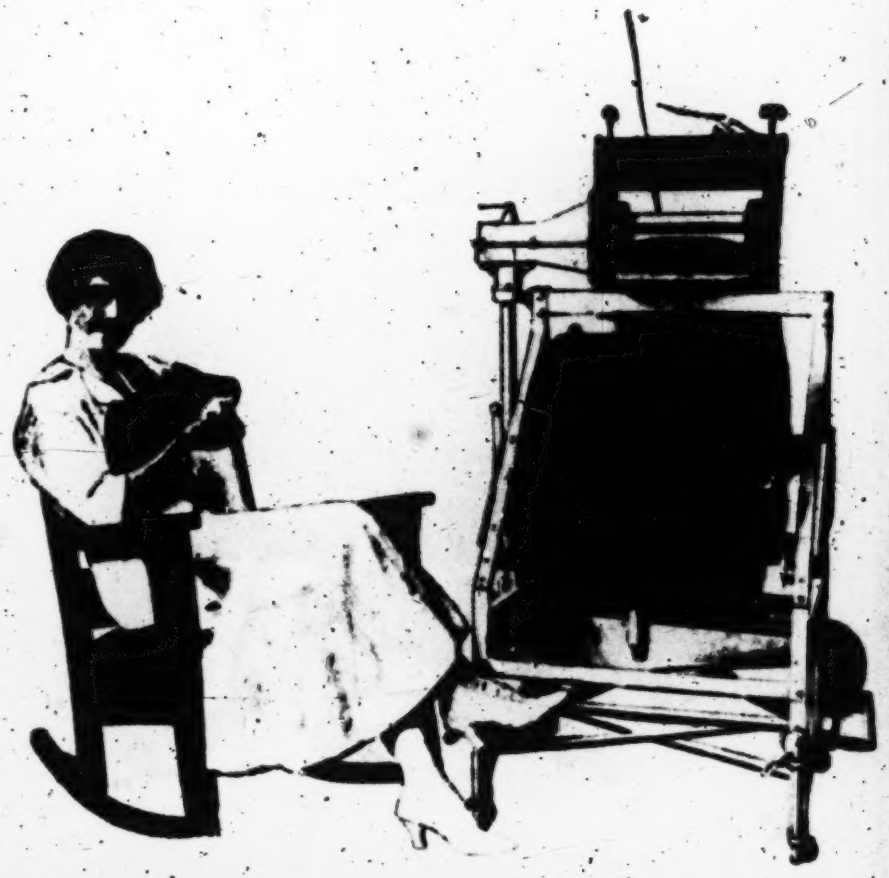
PRICE $19. CASH DISCOUNT $2.

Shipping Weight 63 lbs.

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 10.

1745

The "1900" Cataract Washer



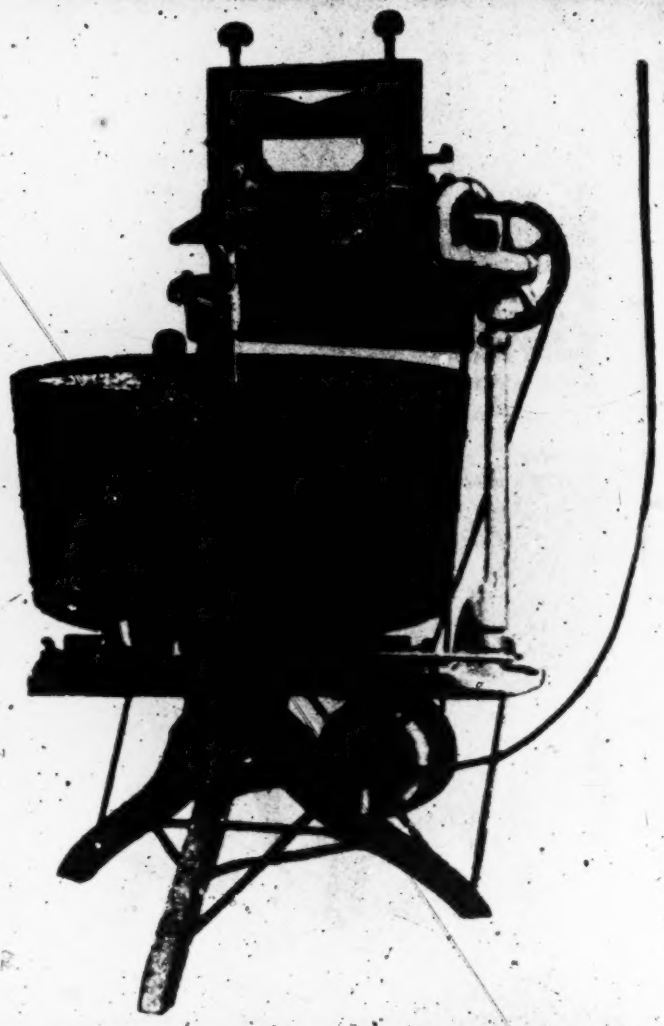
PRICE—Family Size $18. Cash Discount $15. Shipping Weight L. C. L. 362 C. L. 346
Laundry " $16. " 15. L. C. L. 387 C. L. 378
Swing Reversible Wringer

If Electric Current is DIRECT, give VOLTAGE; if ALTERNATING, give VOLTAGE and CYCLES, so that proper motor may be sent.

PART OF DEFENDANT'S EXHIBIT 38. 1747
DEFENDANT'S DEPOSITION EXHIBIT 10.

The "1900" Standard Electric Washer

REVERSIBLE WRINGER



Family Size, only, with Electric Motor, 47c. Cash Price $[illegible]

" " without Motor - - 42. " " 4.50

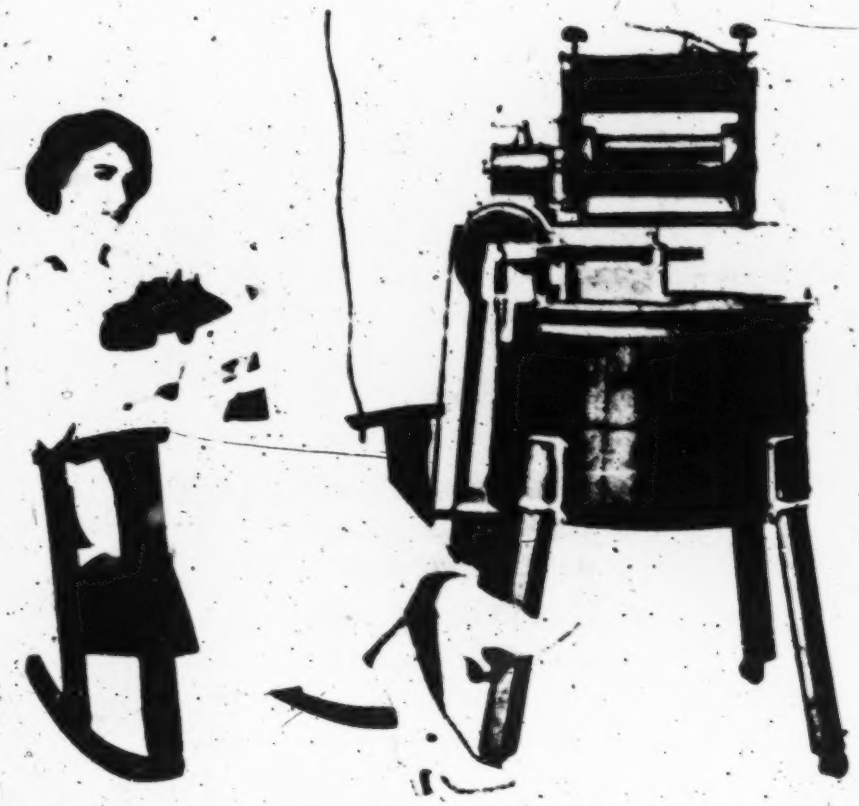
Shipping Weight, 195 lbs., with Motor

" " 165 " without "

If Electric Current is DIRECT, give VOLTAGE; if ALTERNATING, give VOLTAGE and CYCLES, as this motor cannot run on both.

The "1900" Agitator Electric Washer

REVERSIBLE SWING WRINGER—Form No. 1.



Family Size Only,	with	Electric Motor,	$85.	Cash Dis.	$10.
"	"	"	without	"	"	65.	"	10.
"	"	"	with ½ H. P. Gas Eng.	115.	"	"	15.

Shipping Weight, with Electric Motor, 209 lbs.
" " without " " 179 "
" " with ½ H. P. Engine, 239 "

"1900"
Agitator Electric Washer

FORM No. 2

Family Size Only

This machine is similar in construction to the machine shown on page 7. Instead of wood legs it has a metal base and legs, and can be equipped with detachable metal stands for clothes basket and extra tub.

Cuts of this machine will appear in our new catalogue.

INSTALLMENT PRICE $100. CASH DIS. $10.

Without Electric Motor, $90.

Cash Discount $10.

Metal Stands Extra $2.50.

Shipping Weight, 243 lbs.

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 10.

"1900"
Agitator Electric Washer

FORM No. 3

Family Size Only

This machine is similar in construction to the Form 2 machine described on page 8 with the exception that it is equipped with a solid copper tub, tin planished on the inside, and can be equipped with detachable metal stands for clothes baskets or extra tub.

The Form 3 Agitator Washer can be used with Gas Engine.

Cuts of this machine will appear in our new catalogue.

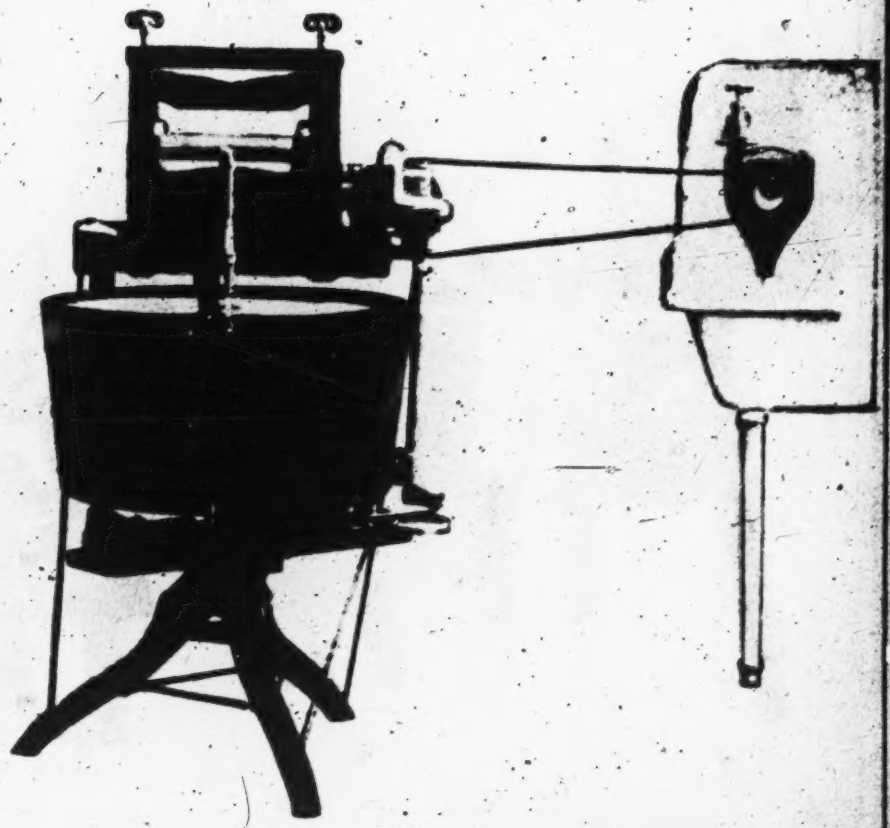
Prices on application.

Shipping weight, 335 lbs.

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 10.

THE "1900"

Standard Water Motor Washer



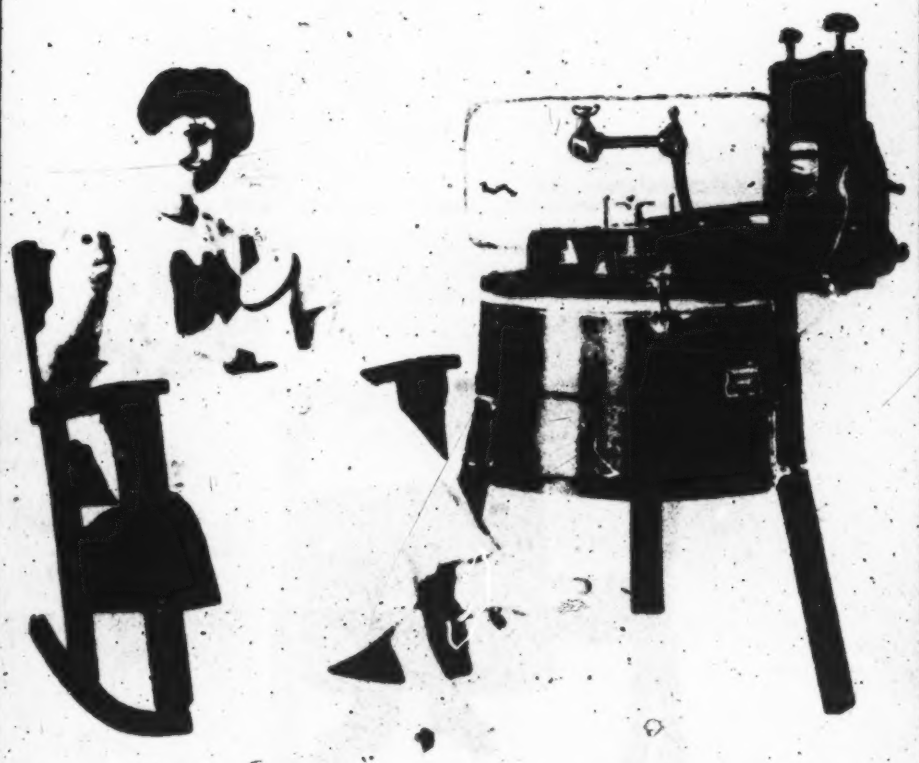
PRICE COMPLETE $33. CASH DISCOUNT $4.50

Water Pressure Required—30 lbs. per square inch at faucet where machine is to be used. Too pressure, can't guess at it. Wringer runs one way only.

Shipping Weight 175 lbs. Wringer Operated by Motor

THE "1900"

Agitator Water Motor Washer



PRICE $27. CASH DIS. $3. Water pressure required, 25 lbs.

Home Comfort Hand Wringer Additional $5.50. Dis. 50c.
1900 Hand Wringer Additional - 6.00. Dis. 50c.

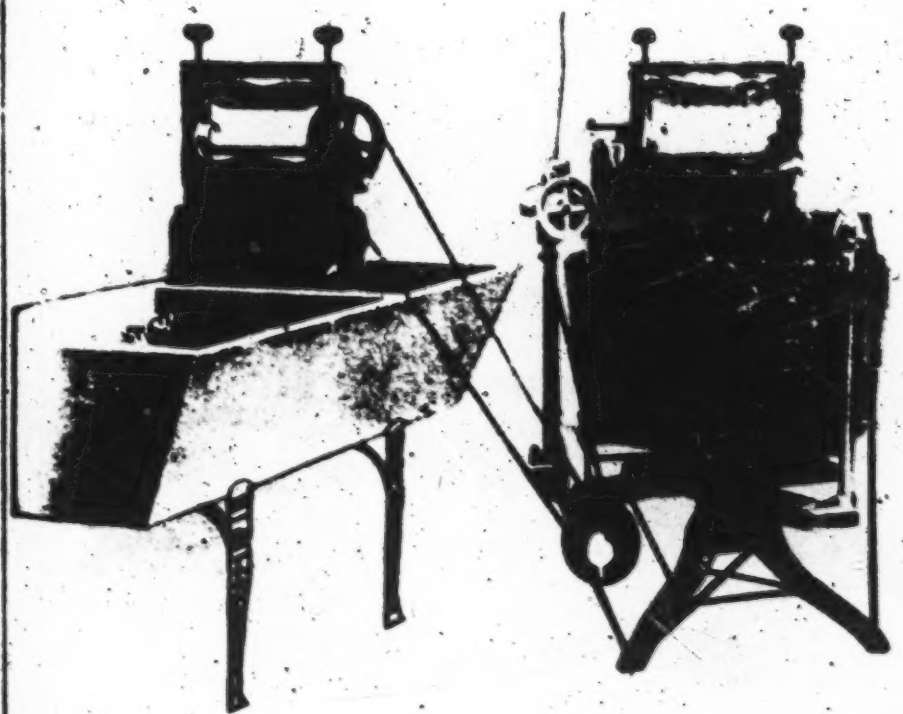
Shipping Weight Machine 60 lbs., Wringer 25 lbs.

The "1900" Ironing Machine

Made in different Sizes. Can be operated by hand or by power. Heated by gas, gasoline or electricity. Prices quoted on application.

PART OF DEFENDANT'S EXHIBIT 38. 1761
DEFENDANT'S DEPOSITION EXHIBIT 10.

"1900" Independent Power Wringer



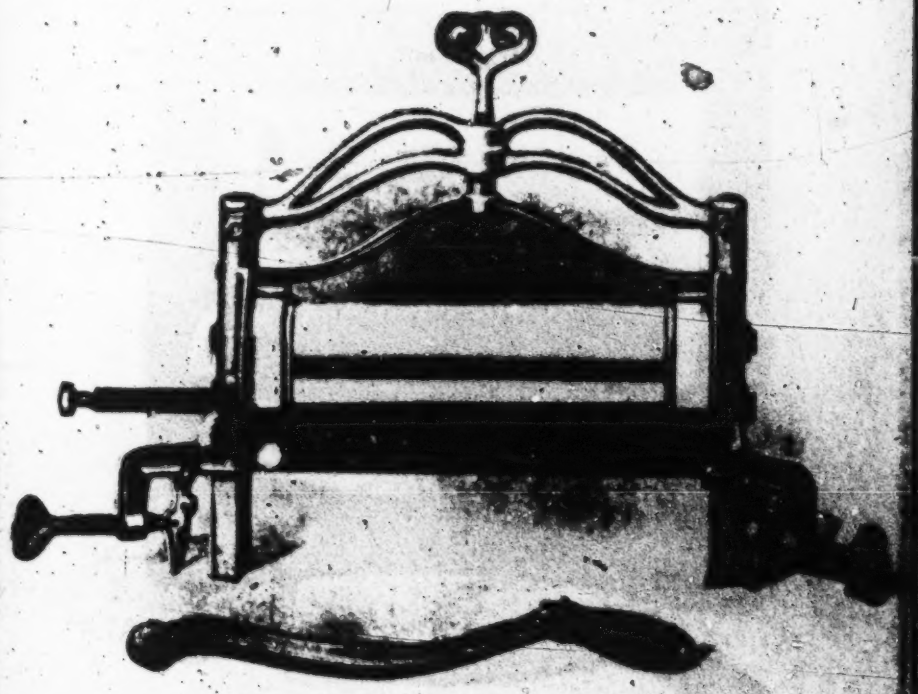
REVERSIBLE INDEPENDENT WRINGER

Price, $18. Cash Dis. $1. Shipping Weight 49 lbs.

1761

The "Old Homestead" Wringer

IRON FRAME



CASH DISCOUNT 30c.

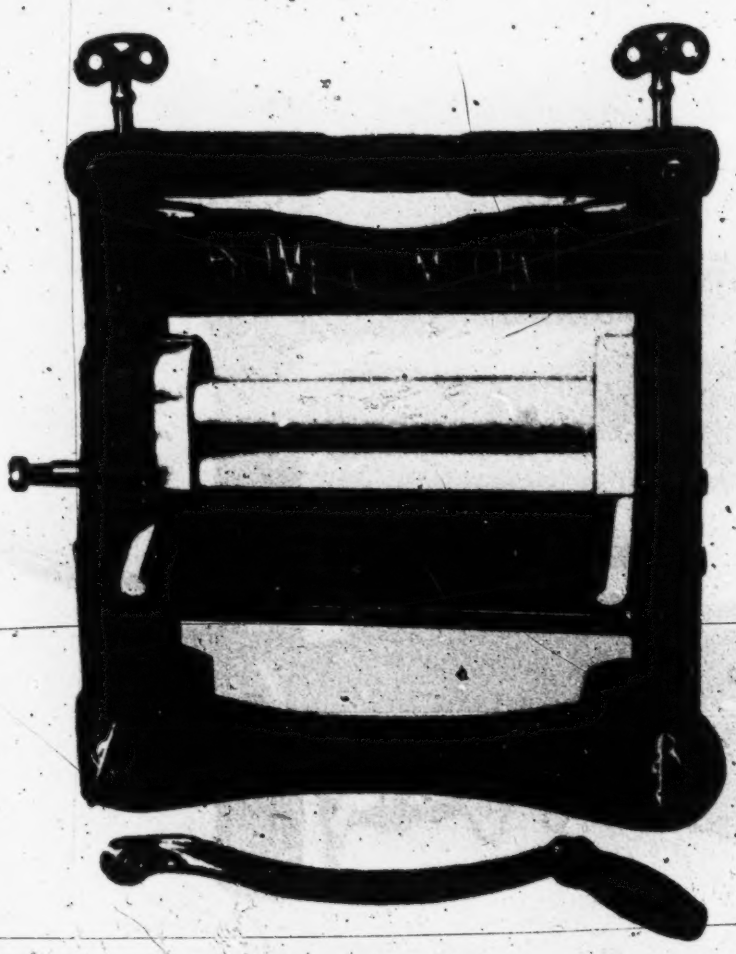
14

1763

PART OF DEFENDANT'S EXHIBIT 38. 1765
DEFENDANT'S DEPOSITION EXHIBIT 10.

The "Home Comfort" Wringer

WOODEN FRAME.



PRICE $~~3.75~~ 3.25. CASH DISCOUNT 50c.

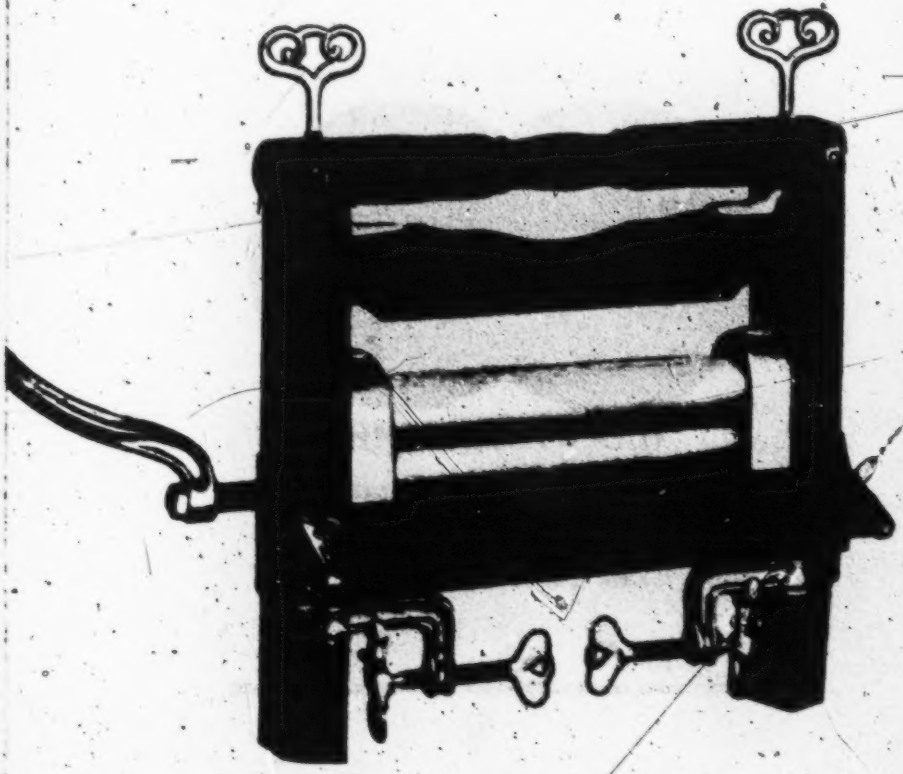
Rolls 10 in. Five year guarantee for Family Use

Shipping Weight 23 lbs.

PART OF DEFENDANT'S EXHIBIT 38. 1767
DEFENDANT'S DEPOSITION EXHIBIT 10.

The "1900" Wringer

WOODEN FRAME



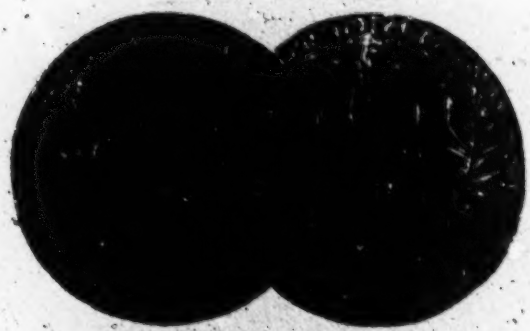
PRICE $6.00. CASH DISCOUNT 60c.

Rolls 10 in. Three year guarantee for Family Use.

Shipping Weight, 27 lbs.

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 10.

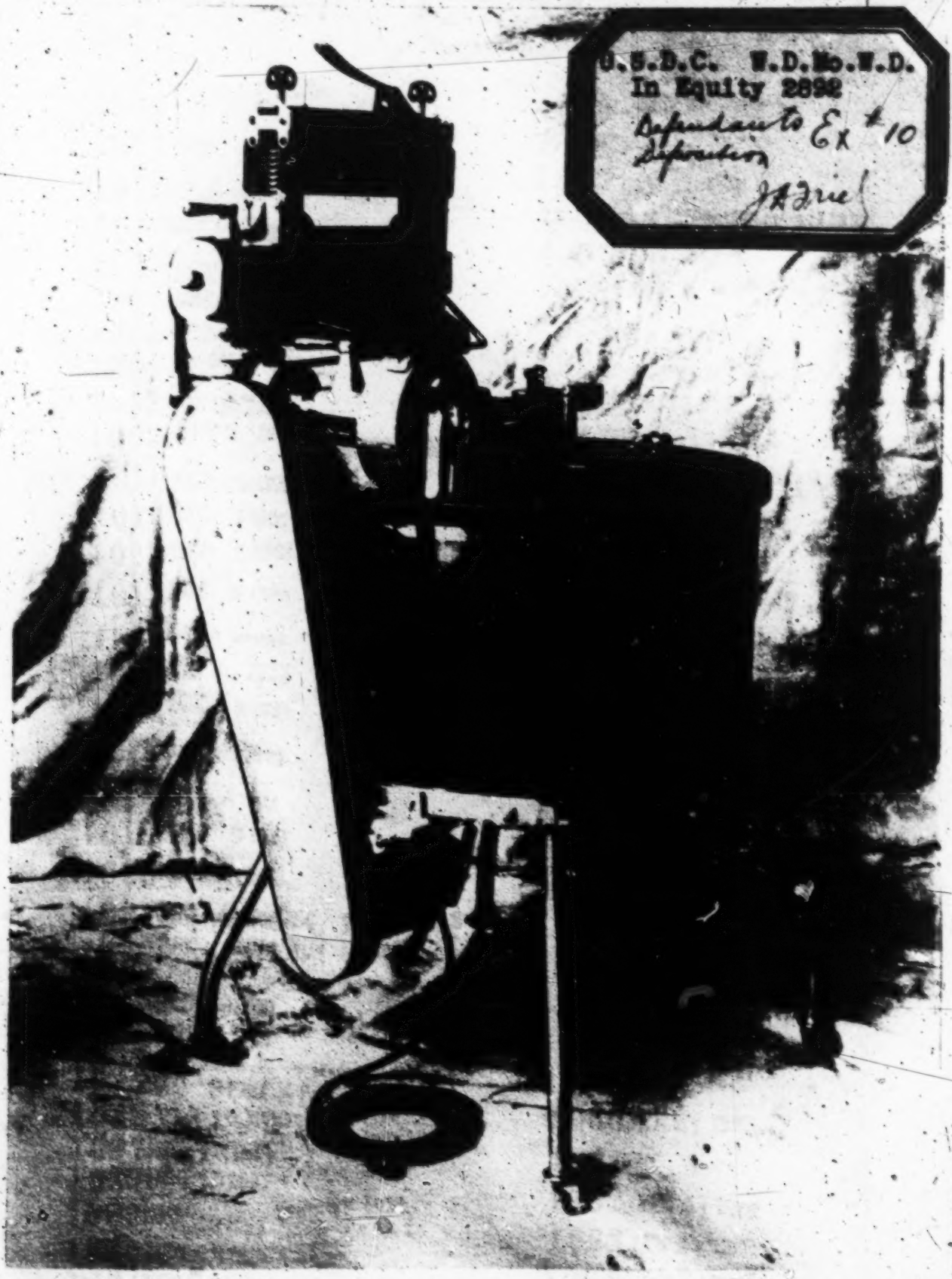
GOLD MEDAL



HIGHEST AWARD

Panama-Pacific International
Exposition
San Francisco, Cal.

PART OF DEFENDANT'S EXHIBIT 38. 1771
DEFENDANT'S DEPOSITION EXHIBIT 10.



PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

1-15-23 #23

1000 DEC 28 [illegible]
1001 OCT [illegible]
1002 [illegible] JAN 13 1922
1003 [illegible]
1004 OCT 29 [illegible] JAN 13 1922
1005 DEC 8 1921
1006 OCT 29 [illegible]
1007 NOV 4 1921
1008 OCT 20 [illegible]
1009 NOV 3 [illegible]
1010 OCT 29 [illegible]
1011 DEC 5 1921
1012 DEC 5 1921
1013 DEC 5 1921
1014 DEC 8 1921
1015 JAN 4 1922
1016 DEC 8 1921
1017 DEC 17 1921
1018 DEC 8 1921
1019 DEC 5 1921
1020 DEC 7 1921
1021 [illegible] DEC 7 1921 JUN 2 6 1928
1022 DEC 8 1921 NOV 2 2 1928
1023 DEC 8 1921
1024 DEC 5 1921
1025 DEC 8 1921
1026 JAN 16 1922
1027 DEC 16 1921
1028 DEC 15 1921
1029 DEC 23 1921 MAR 15 1922
1030 DEC 23 1921
1031 DEC 5 1921
1032 DEC 17 [illegible]

U.S.D.C. W.D.Mo.W.D.
In Equity 2892
Defendants Ex # 11
Deposition

1033 JAN 18 1922
1034
1035 JAN 18 1922
1036 JAN 4 [illegible] MAR 18 1922
1037 JAN 4 1922
1038 JAN 18 1922
1039 JAN [illegible] JAN 7 - 1922
1040 [illegible] JAN 16 1922
1041 JAN 4 1922
1042 JAN 4 1922
1043 JAN 4 1922 JAN 18 1922
1044 JAN 4 1922
1045
1046 JAN 18 1922
1047 JAN 21 1922
1048 JAN 21 1922
1049 Jan. 21 1921
1050 JAN 21 1922 JAN 21 1922
1051
1052 JAN 21 1922
1053 JAN 21 1922 [illegible]
1054 JAN 21 1922
1055 JAN 21 1922
1056 JAN 21 1922
1057 JAN 21 1922
1058 JAN 21 1922
1059 JAN 21 1922
1060 JAN 21 1922
1061
1062 JAN 21 1922
1063 JAN 21 1922
1064 JAN 21 1922
1065 JAN 21 1922

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

2

1775

1066	JAN 21 1922	1098	MAR 3 1922
1067	JAN 21 1922	1099	FEB 28 1922
1068	JAN 21 1922	1100	FEB 22 1922
1069	JAN 21 1922	1101	FEB 22 1922
1070		1102	FEB 16 1922
1071	JAN 21 1922	1103	FEB 24 1922
1072	JAN 21 1922	1104	FEB 24 1922
1073	JAN 21 1922	1105	FEB 24 1922
1074	JAN 21 1922	1106	FEB 25 1922
1075	JAN 21 1922	1107	DEC 16 1922
1076	JAN 21 1922	1108	FEB 10 1922
1077	JAN 25 1922	1109	FEB 24 1922
1078	JAN 21 1922	1110	28 1922
1079	JAN 21 [illegible]	1111	DEC 9 1927 FEB 8 1922
1080	JAN 24 1922	1112	FEB 24 1922
1081	JAN 23 1922 NOV 1 1922	1113	FEB 20 1922
1082	JAN 21 1922	1114	FEB 20 1922
1083	JAN [illegible] 1922	1115	FEB 17 1922
1084	FEB 4 1922 FEB 25 1922	1116	FEB 22 1922
1085	FEB 8 1922	1117	FEB 22 1922
1086	FEB 4 1922	1118	FEB 20 1922
1087		1119	FEB 22 1922
1088	FEB 6 1922	1120	[illegible] OCT 20 1928
1089	FEB 4 1922 FEB 8 1922 JUN 26 1922	1121	FEB 22 1922 FEB 25 1922
1090	FEB 1 1922	1122	FEB 22 1922
1091	FEB 21 1922 FEB 22 1922	1123	FEB 27 1922
1093	FEB 4 1922	1124	FEB 28 1922
JAN 5 - 1922	FEB 7 1922	1125	FEB 28 1922
1094	FEB 4 1922	1126	MAY 29 1924
1095	FEB 8 1922	1127	
1096	FEB 3 1922	1128	MAR 2 1922
1097	FEB 8 1922 MAR - 5 1928		

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

3 1777

1129	JAN 15 1925 MAR 3 1922 MAR 3 1922	1162	MAR 18 1922
1130	MAR 3 1922	1163	MAR 18 1922
1131	MAR 3 1922	1164	MAR 18 1922
1132	MAR 18 1922	1165	MAR 18 1922
1133	MAR 18 1922	1166	MAR 18 1922
1134	MAR 7 1922	1167	MAR 18 1922
1135	MAR 18 1922	1168	MAR 18 1922
1136	MAR 2 1922	1169	MAR 18 1922
1137	MAR 3 1922	1170	MAR 18 1922
1138	MAR 3 1922	1171	MAR 18 1922
1139	MAR 7 1922	1172	MAR 18 1922
1140	MAR 3 1922	1173	MAR 18 1922
1141	DEC 12 1922 MAR 7 1922 JUL 13 1922	1174	MAR 18 1922
1142	MAR 18 1922 MAR 18 1922	1175	MAR 18 1922
1143	MAR 22 1922	1176	MAR 18 1922
1144	MAR 10 1922	1177	MAR 18 1922
1145	MAR 7 1922	1178	MAR 18 1922
1146	MAR 8 1922	1179	MAR 18 1922
1147	MAR 18 1922	1180	MAR 18 1922
1148	MAY 24 1922 MAR 7 1922 SEP 26 1922 JUL 13 1922	1181	MAR 18 1922
1149	MAR 18 1922	1182	
1150	MAR 18 1922	1183	MAR 18 1922
1151	MAR 16 1922	1184	MAR 18 1922
1152	MAR 18 1922	1185	MAR 23 1922
1153	MAR 7 1922 OCT 20 1922	1186	MAR 18 1922
1154	MAR 18 1922	1187	MAR 22 1922
1155	MAR 7 1922	1188	MAR 18 1922
1156	MAR 18 1922	1189	
1157		1190	MAR 18 1922
1158	MAR 8 1922 MAR 18 1922	1191	MAR 20 1922
1159	MAR 8 1922	1192	MAR 18 1922
1160	MAR 8 1922	1193	MAR 18 1922
1161	MAR 18 1922	1194	MAR 20 1922
		1195	MAR 18 1922

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

4

1196 MAR 18 1922

1197 MAR 18 1922

1198 MAR 18 1922 MAR 18 1922

1199 MAR 18 1922

1200 MAR 18 1922

1201 MAR 18 1922

1202 MAR 18 1922

1203 MAR 18 1922

1204 MAR 18 1922

1205 MAR 18 1922

1206 MAR 18 1922

1207 MAR 18 1922

1208 MAR 18 1922

1209 MAR 18 1922

1210 MAR 18 1922

1211 MAR 18 1922

1212 MAR 18 1922

1213 MAR 18 1922

1214 MAR 18 1922

1215 MAR 18 1922 MAY 2 1922

1216 MAR 18 1922

1217 APR 7 1922

1218 MAR 24 1922

1219 APR 1 1922

1220 APR 7 1922

1221 MAR 18 1922 NOV 1 1922

1222 MAR 24 1922

1223 APR 7 1922

1224 APR 7 1922

1225 APR 7 1922

1226 APR 7 1922

1227 APR 7 1922

1228 APR 7 1922

1229 APR 7 1922

1230 APR 7 1922

1231 APR 7 1922

1232 APR 7 1922

1233 APR 7 1922

1234 APR 7 1922

1235 APR 7 1922

1236 APR 7 1922

1237 APR 7 1922

1238 APR 7 1922

1239 APR 7 1922

1240 APR 7 1922

1241 APR 7 1922

1242 APR 7 1922

1243 APR 7 1922

1244 APR 7 1922

1245 APR 7 1922

1246 APR 7 1922

1247 APR 7 1922

1248 APR 7 1922

1249 MAY 2 1922

1250 APR 27 1922

1251 APR 27 1922

1252 MAY 2 1922

1253 MAY 5 1922

1254 MAY 2 1922

1255 MAR 31 1924

1256 APR 20 1922

1257 MAY 19 1922

1258 MAY 2 1922

1259 MAY 2 1922

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

1260 MAY 1
1261 MAY 3 1922
1262 APR 17 1922 MAY 6 1922
MAY 6
1263 MAY 3 1922
1264 MAY 5 1922 JUN 10 1922
1265 APR 17 1922 MAY 4 1922
1266 APR 5 1924
1267 MAY 6 1922 OCT 30 1928
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1269 APR 20 1922
APR 27 1922
1270 AUG 7 - 1928
1271 APR 19 1922 OCT 21 1922
1272 MAY 6 1922
1273 APR 15 1922
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1275 MAY 4 1922 AUG 5 1922
1276 APR 29 1922 DEC 8 - 1924
1277 MAY 4 1922
DEC 18 1924
1278 APR 6 1922
1279 APR 15 1922 AUG 14 1928
1280 MAY 4 1922
1281 APR 15 1922 AUG 13 1928
1282 APR 21 1922
1283 APR 15 1922
1284 MAY 4 1922
1285 APR 3 1922
1286 MAY 4 1922
1287 APR 20 1922 JUL 17 1928
1288 APR 17 1922 APR 5 1924
1289 APR 15 1922 JUN 27 1922
1290 MAY 4 1922
1291 APR 15 1922 AUG 28 1928
OCT 17
1292 APR 15 1922 SEP 24 1928

1293 MAY 4 1922
1294 AUG 5 1924
1295 APR 15 1922
1296 MAY 4 1922
1297 MAY 4 1922 OCT 30 1928
1298 APR 15 1922
1299 MAY 11 1922
1300 APR 17 1922 APR 5 1924
MAR 2 5 1928
1301 MAY 6 1922
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1303 APR 27 1922
1304 APR 27 1922
1305 APR 15 1922
1306 APR 17 1922
1307 APR 28 1922 JUL - 1922
1308 APR 27 1922
OCT 30 1928 1309 APR 5 1924
MAY 4 1922 OCT 5 - 1928
1310 APR 17 1922 AUG 8 - 1928
1311 APR 15 1922
1312 MAY 8 1922 JUL 13 1922
1313 MAY 6 1922
1314 MAY 4 1922
1315 APR 27 1922
DEC 7 1922
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JAN 14 1928
1317 MAY 19 1922
1318 APR 27 1922 OCT 30 1928
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1320 MAY 11 1922
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1323 MAY 19 1922
1324 JUN 22 1922
1325 MAY 19 1922

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

1326 MAY 2 1932

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JUN 6 1932 1348 JUN 2 1932

1349 MAY 20 1932

1350 MAY 11 1932

DEC 1 1 1928 1351 MAY 10 1932

DEC 1 1 1928 1352 MAY 19 1932

OCT 3 0 1928 1353 MAY 11 1932

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1362 MAY 10 1932

1363 MAY 11 1932

1364 JUN 3 1932

1365 JUL 21 1932

1366 MAY 18 1932

1367 JUN 20 1932

1368 MAY 11 1932 JUL 6 1

1369 MAY 19 1932

1370 MAY 13 1932

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1372 JUN 10 1932

1373 JUN 6 1932

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1375 JUN 10 1932

1376 JUN 8 1932

1377 JUL 6 1932

1378 JUN 8 1932

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1380 JUL 5 1932

1381 JUN 8 1932

1382 JUN 14 1932

1383 JUN 8 1932

1384 JUN 10 1932

1385 MAY 20 1932

1386 JUL 5 1932

1387 JUN 8 1932

1388 JUL 5 1932

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1390 JUN 17 1932

1391 MAY 27 1932

JAN 7 - 1934 1392 MAY 2 3 1932

1393 JUN 5 1932

1394 JUN 22 1932

1395 MAY 26 1932

1396 MAY 26 1932

1397 MAY 19 1932

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

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1399 JUN 22
1400 MAY 19
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1402 MAY 20
1403 MAY 20
1404 JUN 30 MAY 8 - 1923
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1406 JUL 5 JUL 8
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1412 JUL 5
1413 JUN 22
1414 JUN 8
1415 JUN 27 OCT 30
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OCT 30
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1422 JUN 8
1423 JUN 8
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1425 JUN 8
1426 JUN 8
1427 DEC 1 -
JUN 8
1428 JUN 8
1429 JUN 8
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1431 JUN 8
1432 JUN 8
1433 JUN 8

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1441 JUN 8 MAR 2
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1443 JUN 8
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1448 JUN 8
1449 JUL 10
1450 JUN
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1452 DEC 1 6
JUL 21
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1454 JUN 8
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1456 JUN 8
1457 JUN 8
JUN 29
1458 JUN 8
NOV 2 2
1459 JUN 8
1460 JUN 8
JUN 1
OCT 30
1461 MAY 25
1462 JUN 8
1463 MAY 27
1464 JUL 6
1465 JUL
1466 JUL 21
1467 JUN 8
1468 JUL 8
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PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

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1472 JUN 23 1922
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MAY 9 - 1923 1497 JUL 8 1922
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1499 JUL 10 1922 AUG 5 1922
APR 14 1923 1500 JUL 8 1922
1501 JUL 13 1922
1502 JUL 8 1922
1503 AUG 16 1922
1504 AUG 23 1922
1505 AUG 5 1922
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NOV 23 1923 OCT 12 1923 1502 AUG 16 1922

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1509 AUG 15 1922
1510 AUG 23 1922 SEP 9 1923
1511 AUG 10 1922
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1513 OCT 16 1922
1514 AUG 4 1922
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1516 JUL 29 1922
1517 AUG 5 1922
1518 JUL 28 1922
1519 AUG 10 1922 OCT 1 - 1923
1520 AUG 5 1922
1521 AUG 26 1922
1522 AUG 5 1922
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1531 JUL 28 1922
1532 AUG 5 1922
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1537 AUG 17 1922 SEP 18 1922 OCT 20 '22
1538 JUL 25 1922 MAR 3 - 1923
1539 AUG 5 1922 AUG 21 1922
1540 AUG 29 1922
1541 AUG 15 1922
1542 APR 11 1924

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

1789

1542 AUG 5 1922
1544 AUG 7 1922 OCT 20 1922
1545 AUG 5 1922
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1547 AUG 5 1922 DEC 1 - 1928
1548 AUG 5 1922 JAN 7 - 1924
1549 JUL 25 1922 SEP 29 1922
1550 JUL 21 1922 AUG 22 1922
1551 AUG 5 1922
1552 AUG 5 1922
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1554 JUL 29 1922 SEP 18 1922
1555 AUG 5 1922 OCT 30 1928
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1558 AUG 5 1922 AUG 28 1922
1559 JUL 29 1922 AUG 19 1922
1560 AUG 16 1922 AUG 29 1922
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1562 JUL 26 1922 AUG 8 1922
1563 AUG 1 1922 AUG 5 1922 OCT 10 1928
DEC 1 1928 1564 JUL 31 1922 AUG 5 1922
1565 AUG 5 1922 APR 9 - 1929
1566 AUG 5 1922
1567 AUG 5 1922
1568 AUG 1 1922 SEP 19 1922 AUG 25 1928
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1572 AUG 5 1922
1573 JUL 31 1922
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1576 OCT 10 1922
1577 OCT 11 1922
1578 SEP 11 1922
1579 SEP 19 1922
1580 SEP 22 1922

1581 SEP 1 1922 OCT 21 1922
1582 OCT 17 1922
1583 OCT 11 1922
1584 AUG 25 1922 APR 4 - 1928
1585 OCT 10 1922
1586 SEP 9 1922
1587 AUG 25 1922 SEP 22 1922
1588 AUG 23 1922
1589 AUG 30 1922 OCT 9 1922
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1591 AUG 22 1922 MAR 2 0 1923
1592 JUL 31 1922 AUG 23 1922
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1609 SEP 5 1922
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1613 SEP 11 1922 OCT 17 1928
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1615 SEP 11 1922
1616 OCT 6 1922 OCT 13 1922
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1618 SEP 6 1922

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

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1637 NOV 1922

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1640 DEC 9 1922

1641 NOV 1922

1642 NOV 24 1922

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1644 OCT 4 1922

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1647 NOV 16 1922

1648 SEP 19 1922

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1650 SEP 29 1922

1651 SEP 29 1922

1652 OCT 20 1922

1653 OCT 3 1922

1654 OCT 9 1922

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PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

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1655 [illegible] OCT 4 [illegible] NOV 7 192[illegible]
1656 OCT 9 [illegible]
1657 [illegible]
1658 OCT 9 [illegible]
1659 NOV 21 192[illegible]
1660 [illegible] DEC 12 1922
1661 NOV 10 [illegible]
1662 OCT 30 192[illegible]
1663 [illegible]
1664 NOV 4 192[illegible] OCT 30 1928
1665 DEC 9 1922
1666 NOV 17 1922
1667 NOV 28 [illegible]
1668 DEC 5 1922
1669 NOV [illegible] AUG 6 - 1928
1670 NOV [illegible] 192[illegible]
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1672 NOV 14 1922
1673 DEC 9 1922
1674 NOV 28 [illegible]
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1676 DEC 9 1922
DEC 13 1922
1677 NOV 4 192[illegible]
1678 DEC [illegible] 1922
1679 DEC 9 1922
1680 NOV 29 [illegible]
1681 NOV [illegible] DEC 12 1922
1682 NOV 21 192[illegible]
1683 NOV 15 1922
1684 NOV 25 [illegible] MAR - 3 1928
1685 DEC 9 1922
1686 NOV 15 [illegible]
1687 DEC [illegible] 1922
1688 DEC - 1 1922
1689 DEC 9 1922

17[illegible]

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

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	1727 OCT 3 0 1928
	1728 JAN 2 2 1928
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NOV	1730 MAR 1 8 1928 MAR 3 0 1928
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	1695 DEC 2 1922 1735 JUL 2 1
	1696 MAR 2 1 1928 1736
	1697 1737 MAR 1 0
NOV 15	1698 DEC 1 8 T 3 0 1928 1738 MAR 1 7 1928
	1699 DEC 2 1 1922 1739 APR
	1700 1740 MAR 1 7 1928
JAN 1 8	1701 DEC 2 3 1922 1741
	1702 DEC 1 9 1922 1742 APR 5 1928
FEB 1 5	1703 DEC 1 9 1922 1743
	1704 DEC 1 9 1922 1744 APR 9 - 1928
1706	FEB 1 7 1928 1745 JAN 7 - 1924
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1708	JAN 1 3 1928 MAY 1 4 1928 1746
1709	JAN 9 1928 1747 SEP 6 - 1928
1710	FEB 2 0 1928 1748 APR
1711	MAR 1 2 1928 1749 APR
1712	JAN 6 1928 MAY 2 6 1928 1750 JUL 1 9
1713	JAN 2 4 1928 1751
1714	JAN 9 1928 1752 APR 9 - 1928
1715	1753
1716	JAN 1 3 1928
1717	1754 SEP 1 5 1928
1718	JAN 1 3 1928 1755 OCT 3 0 APR 5 1924
1719	JAN 2 4 1928 1756 JUN 2 3 1928
1720	JAN 1 7 1928 FEB 2 3 1928 1757 MAR 1 9 1928
1721	DEC 2 7 1922 MAY 1 5 1924 1758
1722	JAN 1 3 1928 1759
1723	JAN 2 8 1928 1760
1724	FEB 2 3 1928 1761
1725	FEB 2 8 1928 1762 FEB 2 8 1928

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

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PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 11.

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MAY 29 1928 OCT 1 1928 NOV 23 1928

MAY 9 - 1928

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 12.

1900 AGITATOR WASHER

Model 400

Made by the manufacturers of the famous 1900 Whirlpool line of washers and ironers.

FEATURES

HIGHEST QUALITY PORC-ENAMEL TUB

Full two-fired enamel inside and outside on Armco ingot metal base. Beautifully finished in dappled ivory. Completely rust proof.

BALLOON ROLL PRESSURE CLEANSER

Water is removed by the use of full 2½-inch soft balloon wringer rolls. Pressed steel housing. Seven water removal positions.

SIMPLE AND CONVENIENT CONTROL

One simple control for operation of washer. When washer is stopped clothes are accessible without removing agitator. Wringer is also operated by one convenient lever.

IMPORTANT MECHANICAL FEATURES

Case hardened and precision ground parts. Cut gears. Special purpose bearings. Automatic oiling. Direct drive. Quick and complete drainage.

CAPACITY AND COMPACTNESS

6 lbs. dry clothes per tub (larger than the average medium priced washer) and yet this washer occupies very little space—little as a person could turn around in. When not in use it pushes back into a corner and occupies a small space, even in a very small kitchen apartment.

A QUALITY WASHER AT A LOW PRICE

Designed and built to embody all the practical refinements of mechanical construction and operating efficiency of higher priced washers at a price which enables owners to purchase other conveniences.

CONTRACT PURCHASE PLAN

A Contract Purchase Plan enables you to show that the money you spend for this washer is actually money earned. A small down payment enables it to more than earn its own cost.

U.S.D.C. W.D.Mo.W.D.
In Equity 2892
Defendants Ex # 12
Deposition
J.H. Price

AG-1 WHS-8-39-A.P.

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 104.

1900 AGITATOR WASHER
MODEL 400

Manufactured by
NINETEEN HUNDRED CORPORATION
Binghamton, N. Y.

2

Form 222

BILLING COPY

TO FACTORY OFFICE TO BE RETURNED TO COMMERCIAL DEPARTMENT

Ordered 9/30/21 1900 Washer Co

Name W. Lee Holmes.

Address 323 Phelan Bldg.
San Francisco, Cal.

Shipped Oct. 8, 1921.

Invoice No. 9959 A

Req. No. 11156 A

Customer's No. 8649

Consigned to SAME

Make-out Card

Refer Inquiries

Routing Erie Collect C. B. & Q. - U. P. c/o So. Pacific Lines at Ogden

Def Ex 13
1-2824
N.E.T.

No.	Terms	FACTORY COST Unit	FACTORY COST Total	SELLING PRICE Unit	SELLING PRICE Total
	Bill OCT 12 1921 2 L				
2	Samples of new Agitator Electric	61 26	122 52	61 26	122 52

U.S.D.C. W.D.Mo.W.D.
In Equity 2882
Defendants Ex # 13
Deposition
Filed

FORM 2

per CBR

memorandum only

PART OF DEFENDANT'S EXHIBIT 381805
DEFENDANT'S DEPOSITION EXHIBIT 13.

2 Form 332

BILLING COPY

TO FACTORY OFFICE TO BE RETURNED TO COMMERCIAL DEPARTMENT

JAN 18 19[illegible] CHECKED

Ordered 11/25/'21

Shipped

Factory

Name W. A. Osgood,

Invoice No. 4[illegible]

Office

Address 908 S. Saline St.,

Req. No. 11632

Syracuse, N. Y.

Customer's No. 3818

Def's Ex 14
1-25-34
N.T.

Consigned to SAME

Make

Refer Inquiries

Routing Freight Collect -- Cart to D. L. & W.

No.	Terms 3/30/60 = 12.02 Billed JAN 19 1922 L JAN 19 1922	FACTORY COST Bill	FACTORY COST Total	SELLING PRICE Bill	SELLING PRICE Total
3	New Style Agitator Electrics, Form 4	61 26	183 78	84 37	252 11
	S 1035 2490658		Less 2pc 570		12 55
	S 1043 2858217				240 56
	S 1033 2495671				

6126
3
1837 8

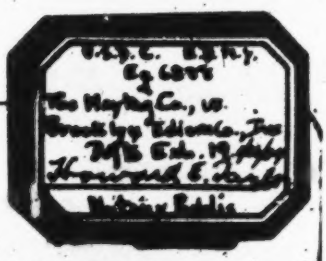
U.S.D.C. W.D.Mo.W.D.
In Equity 2892
Defendants } Ex. #14
Deposition }
J.A. Friel

PART OF DEFENDANT'S EXHIBIT 38:
DEFENDANT'S DEPOSITION EXHIBIT 14.

1807

PART OF DEFENDANT'S EXHIBIT 38. 1809
DEFENDANT'S DEPOSITION EXHIBIT 18.

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 19.



General Progress

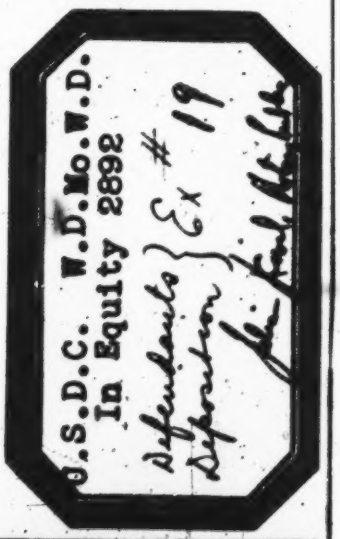
Substitute for Agitator Electric Washer.

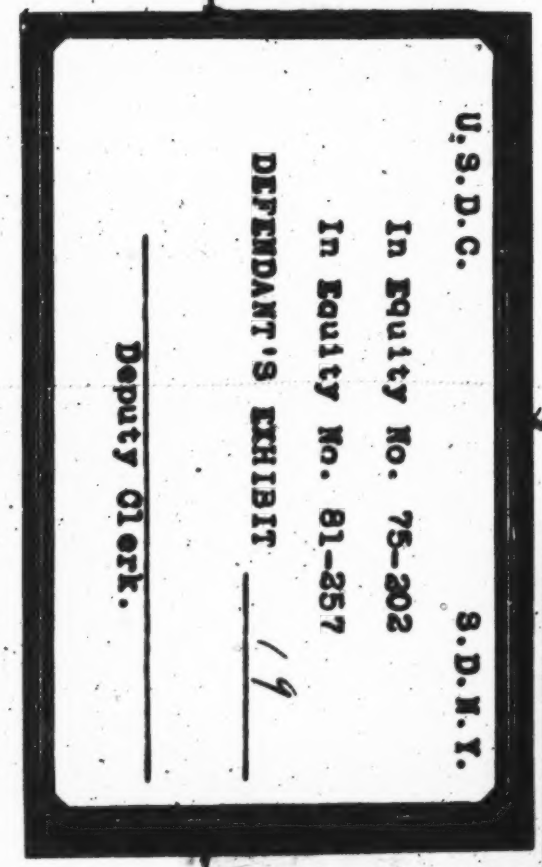
9/16/20 start.

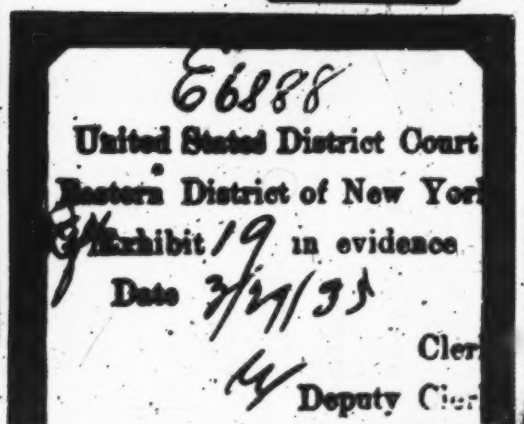
9/19/20 Casting 2 bars from wooden pattern used

9/10/21 Trial machine made from master patterns returned from about one washer use by customer for trial

9/20/21 Trial with aluminum foldable agitator + wooden vanes requires 240 watts







PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 102.

DEFENDANT'S EXHIBIT 102

SCHEDULE
1 "1900" Agl. Elec. Washer Form 3 $135.00
rebate of $5.00 will be allowed on this account if payments are made at the store for the art due and on the date due.
TOTAL.....

No..... Syracuse, N.Y. 1/1/1920

This is to Certify That I have received of W. A OSGOOD the goods described in this schedule, and for which I agree to Pay Promptly the sum of $135.00 Dollars, as follows: $20.00 down and $15.00 per month payable at the store 908 S. Salina St on the 1st day of the month.....

It is agreed that the title of these goods shall not pass until the same are paid for in full, and that they shall remain the property of W. A. OSGOOD until that time. In default of any payment, at the time specified, or in case I violate any part of this Contract, you or your agent may enter upon my premises and remove the same without process of law, or the whole amount becomes due at your option.

I hereby agree not to remove said property from No. 388 ...ast Newell Street ..... without written permission from your office.

All verbal agreements are merged in this Contract.

I hereby guarantee the payment of the above. Laura C. B Baker ..... WITNESS

DUPLICATE MUST BE LEFT WITH CUSTOMER.

5 185

160.

No. 5 186

Name Mrs Laura C B Baker

Residence 308 W Newell

Collector. Chas H

Amt Paid 20.00

Balance 115.00

Date 1/1/20

Deputy Clerk

Clerk

Date

Disposition of Key Tag

United States District Court

1589

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 104.

SCHEDULE

1 Ayr. Elec
Form # 3 135.00

A rebate of $5.00 will be allowed on this acc. if payments are made at the store

No. Syracuse 2/7 1920

This is to Certify That I have received of W. A. OSGOOD the goods described in this schedule, and for which I agree to Pay Promptly the sum of $135.00 Dollars, as follows: $10.00 down and $10.00 per month to the date of store until final at interest $1.5 per month.

It is agreed that the title of these goods shall not pass until the notes are paid for in full, and that they shall remain the property of W. A. OSGOOD until that time. In default of any payment, at the time specified, or in case I violate any part of this Contract, you or your agent may enter upon my premises and remove the same without process of law, or the whole amount becomes due at your option.

I hereby agree not to remove said property from No. 105 Madison Street 1st East Syracuse without written permission from your office.

All verbal agreements are merged in this Contract.

I hereby guarantee the payment of the above. W. S. Law Watson WITNESS

TOTAL.....

DUPLICATE MUST BE LEFT WITH CUSTOMER.

181

SCHEDULE

2/3/1920
1 Ayr. Elec
Form # 3 137.50

A rebate of $2.50 allowed on this acc. if terms of contract are kept

No. Syracuse 3/9 1920

This is to Certify That I have received of W. A. OSGOOD the goods described in this schedule, and for which I agree to Pay Promptly the sum of 137.50 Dollars, as follows: $5.00 down and $15.00 per month payable at the store the 9th

It is agreed that the title of these goods shall not pass until the notes are paid for in full, and that they shall remain the property of W. A. OSGOOD until that time. In default of any payment, at the time specified, or in case I violate any part of this Contract, you or your agent may enter upon my premises and remove the same without process of law, or the whole amount becomes due at your option.

I hereby agree not to remove said property from No. 106 West Street Ave. A without written permission from your office.

All verbal agreements are merged in this Contract.

I hereby guarantee the payment of the above. Mrs Chas. E. Park WITNESS

TOTAL.....

DUPLICATE MUST BE LEFT WITH CUSTOMER.

5 187

181-2

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 104.

SCHEDULE

1 Agi. Elec
Form #3 $135.00

TOTAL.....

No..... Syracuse 3/10 1920

This is to Certify That I have received of W. A. CRACCO the goods described in this schedule, and for which I agree to Pay Promptly the sum of 135.00 Dollars, as follows: $20.00 down and 20.00 per month payable at the store on the 10th

It is agreed that the title of these goods shall not pass until the sums are paid for in full, and that they shall remain the property of W. A. CRACCO until that time. In default of any payment, at the time specified, or in case I violate any part of this Contract, you or your agent may enter upon my premises and remove the same without process of law, or the whole amount becomes due at your option.

I hereby agree not to remove said property from No.....
..... Street .....without written permission from your office.

All verbal agreements are merged in this Contract.

I hereby appreciate the payment of the above. Bertha Hartage WITNESS

DUPLICATE MUST BE LEFT WITH CUSTOMER.

1813

SCHEDULE

3/23/1920
"1900" Agi. Elec.
copper tub $137.50
A rebate of $2.50 if terms of this contract are kept.
A discount of $18.50 allowed on this ac. if paid in full on or before April 23, 1920.

TOTAL.....

No..... Syracuse, N.Y. Apr. 11, 1920

This is to Certify That I have received of W. A. CRACCO the goods described in this schedule, and for which I agree to Pay Promptly the sum of $137.50 Dollars, as follows: $15.00 down and $15.00 per month payable at 208 S. Salina St. on the 2nd day of the month

It is agreed that the title of these goods shall not pass until the sums are paid for in full, and that they shall remain the property of W. A. CRACCO until that time. In default of any payment, at the time specified, or in case I violate any part of this Contract, you or your agent may enter upon my premises and remove the same without process of law, or the whole amount becomes due at your option.

I hereby agree not to remove said property from No. 104
West Ave. East Syracuse, N.Y. .....without written permission from your office.

All verbal agreements are merged in this Contract.

I hereby appreciate the payment of the above. Mrs. H. B. Peck WITNESS

DUPLICATE MUST BE LEFT WITH CUSTOMER.

5 188

1814

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 104.

SCHEDULE

1900 Agitator Electric	Copper 220. 135.00
TOTAL.....	

No..... Syracuse, N.Y. Apr. 17, 1920. 19

This is to Certify That I have received of W. A OSGOOD the goods described in this schedule, and for which I agree to Pay Promptly the sum of 135.00 Dollars, as follows: $10.00 down and the balance at $10.00 per month

It is agreed that the title of these goods shall not pass until the same are paid for in full, and that they shall remain the property of W. A. OSGOOD until that time. In default of any payment, at the time specified, or in case I violate any part of this Contract, you or your agent may enter upon my premises and remove the same without process of law, or the whole amount becomes due at your option.

I hereby agree not to remove said property from No. 1612 W. Colvin Street Syracuse, N.Y. without written permission from your office.

All verbal agreements are merged in this Contract.

I hereby guarantee the payment of the above. H. N. Willman WITNESS

DUPLICATE MUST BE LEFT WITH CUSTOMER.

1816

SCHEDULE

1 Agitator
Electric Copper
Motor
$135.00

A Rebate of 5% if paid when due made according to contract

TOTAL.....

No..... 3/11 1920

This is to Certify That I have received of W. A OSGOOD the goods described in this schedule, and for which I Agree to Pay Promptly the sum of 135.00 Dollars, as follows: $20.00 Down Balance 15.00 month payable 1st of the month 908 A Delaware St

It is agreed that the title of these goods shall not pass until the same are paid for in full, and that they shall remain the property of W. A. OSGOOD until that time. In default of any payment, at the time specified, or in case I violate any part of this Contract, you or your agent may enter upon my premises and remove the same without process of law, or the whole amount becomes due at your option.

I hereby agree not to remove said property from No. 110 Caroline Street Syracuse without written permission from your office.

All verbal agreements are merged in this Contract.

I hereby guarantee the payment of the above. Mrs Lucil Taylor WITNESS

DUPLICATE MUST BE LEFT WITH CUSTOMER.

5 189

1816

PART OF DEFENDANT'S EXHIBIT 38.
DEFENDANT'S DEPOSITION EXHIBIT 105.

W. A. OSGOOD
LAUNDRY EQUIPMENT CO. INC.
PHONE WARREN 9210

Syracuse, N. Y. 12/5

Sold to

Address

1 N. Style Ty. Oil

10

Signature of Purchaser

The above goods have been received in good order

Sign

It is hereby agreed that if purchaser has any complaint to make [illegible] this shipment in any way that he will take it up

Osgood, 908 S. Salina St., Syracuse, N. Y.

1827

It is understood and agreed that there are no conditions, verbal or otherwise, not herein stated.

We appreciate your custom as shown on the opposite side of this sheet.

We are at all times anxious that our customers be satisfied with goods purchased of us, and we will consider it a personal favor if you will advise us of any dissatisfaction that you may experience, either with our goods or our business relations.

We aim to handle the best of our cleaning line, and we wish to assure you that if you are in need of anything we carry, you will do well to consult us before purchasing.

Telephone or write and our representative will call.

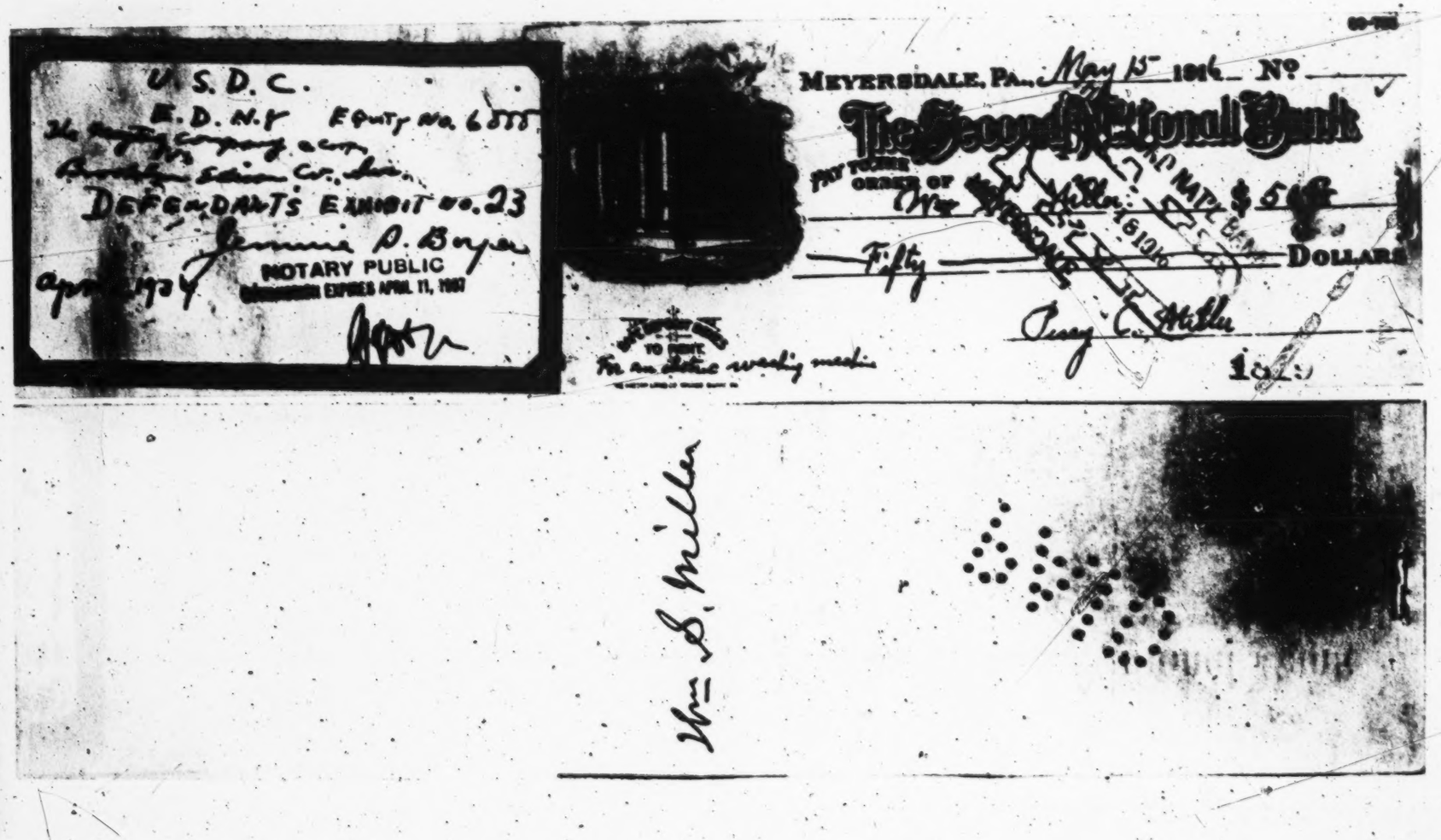
W. A. OSGOOD

908 SOUTH SALINA ST. SYRACUSE, N. Y.
TELEPHONE "WARREN, 9210"

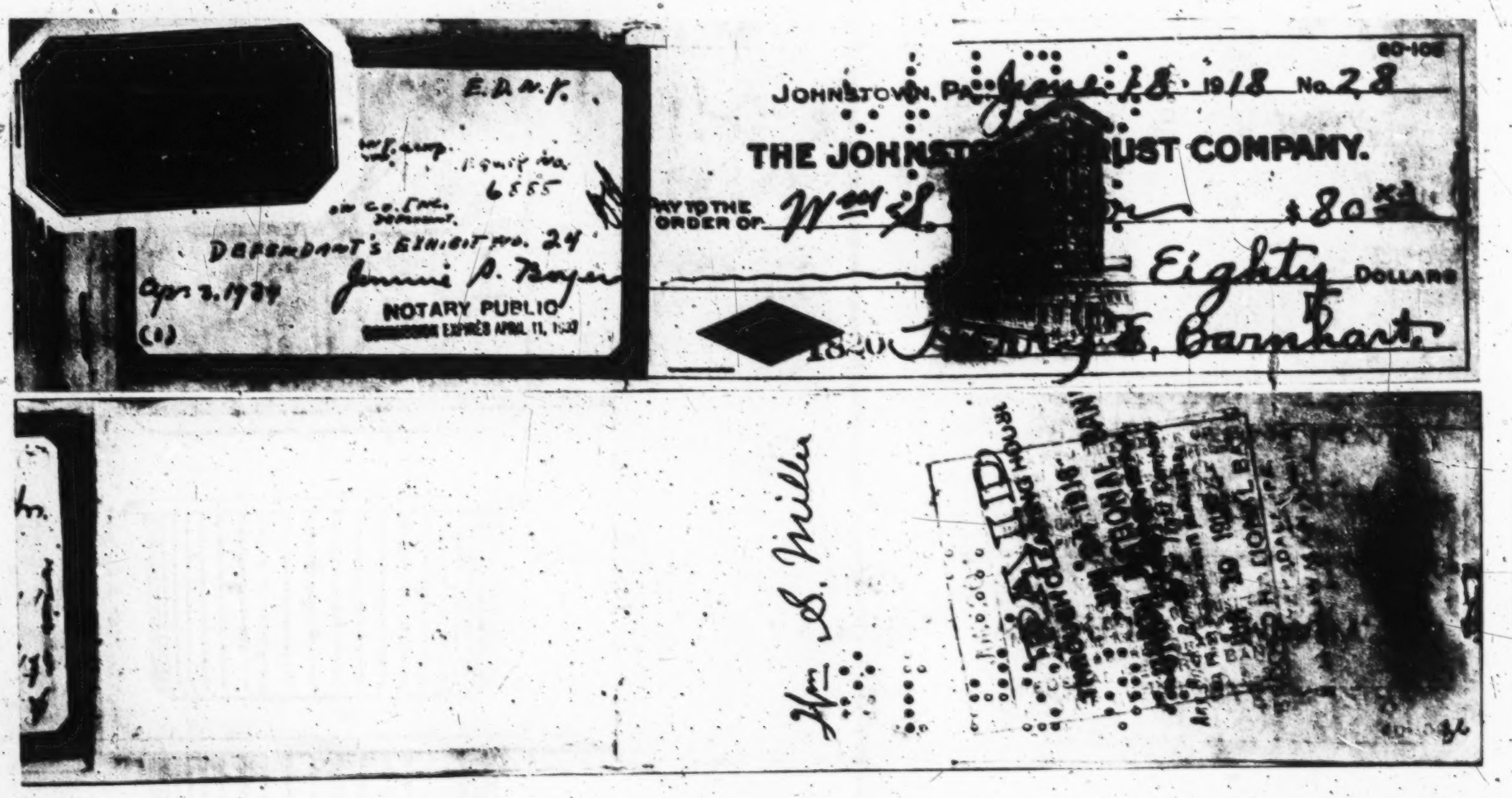
United States District Court
Eastern District of New York
Exhibit 105 in evidence
Date 4/5/55

Clerk
Deputy Clerk

PART OF DEFENDANT'S EXHIBIT 39.
DEFENDANT'S DEPOSITION EXHIBIT 23.


U.S.D.C.
E.D.N.Y Equity No. 6858
DEFENDANTS EXHIBIT No. 23
Jennie P. Boyer
NOTARY PUBLIC
MEYERSDALE, PA. May 15 1916 No.
Fifty DOLLARS
Wm. S. Miller

PART OF DEFENDANT'S EXHIBIT 39.
DEFENDANT'S DEPOSITION EXHIBIT 24.



1821 (Part of Defendant's Exhibit 39—Defendant's Deposition Exhibit 25.)

(Letters Patent No. 53,745 to William S. Miller for Design, August 26, 1919.)

DESIGN.

W. S. MILLER.

WASHING MACHINE TUB.

APPLICATION FILED JULY 6, 1916.

53,745. Patented Aug. 26, 1919.

Fig. 1.

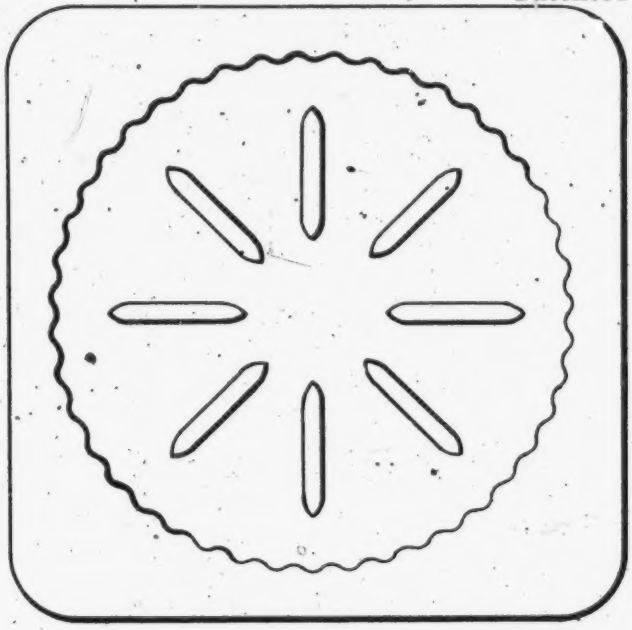


Fig. 2.

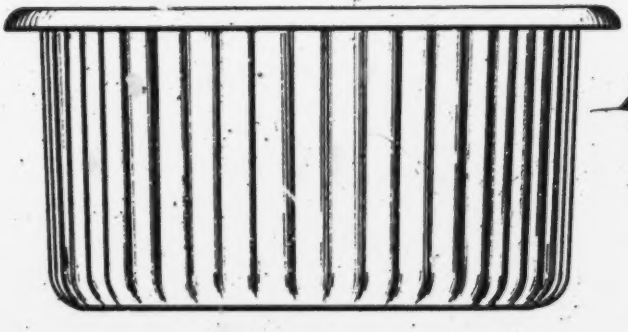
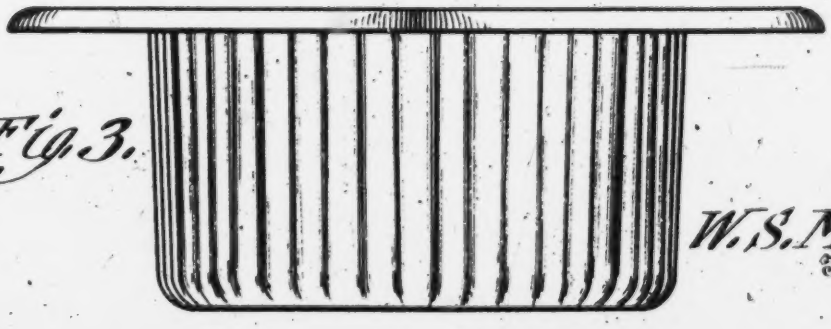


Fig. 3.



W. S. Miller
Inventor

Witness
J. R. Jones

By C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM S. MILLER, OF MEYERSDALE, PENNSYLVANIA.

DESIGN FOR A WASHING-MACHINE TUB.

53,745. Specification for Design. Patented Aug. 26, 1919.

Application filed July 6, 1916. Serial No. 107,859. Term of patent 3½ years.

To all whom it may concern:

Be it known that I, WILLIAM S. MILLER, a citizen of the United States, residing at Meyersdale, in the county of Somerset and State of Pennsylvania, have invented a new, original, and ornamental Design for a Washing-Machine Tub, of which the following, is a specification, reference being had to the accompanying drawing, forming part thereof.

Figure 1 is a plan view of a washing machine tub, showing my new design.

Fig. 2 is an elevation of one side of the tub.

Fig. 3 is an elevation of the tub showing one corner and two sides thereof.

I claim:—

The ornamental design for a washing machine tub, as shown.

WILLIAM S. MILLER.

Witnesses:
WILLIAM H. BLACK,
J. MILTON GUOGEY.

PART OF DEFENDANT'S EXHIBIT 39.
DEFENDANT'S DEPOSITION EXHIBIT 26.

U. S. D. C. E. D. N. Y.
THE MAYTAG COMPANY, a corp. vs. Equity No.
BROOKLYN EDISON CO., Inc. 6885
DEFENDANT'S EXHIBIT No. 26
[illegible] 1927 [signature] NOTARY PUBLIC

60-108
JOHNSTOWN, PA., December 1 1915 No. 14
Y-2C
THE JOHNSTO[illegible]UST COMPANY.
PAY TO THE ORDER OF Mrs [illegible] $15[illegible]
Fifteen [illegible] Dollars
Nancy E. Barnhart

Mrs. Mallis. Glen.

THROUGH CLEARING
DEC 29 1915
UNION NATIONAL BANK
JOHNSTOWN, PA
DEC

DRAWING of MILLER WASHING MACHINE-Defts. Exh. No. 137
DEFENDANT'S EXHIBIT #21. (CORRUGATED TUB)

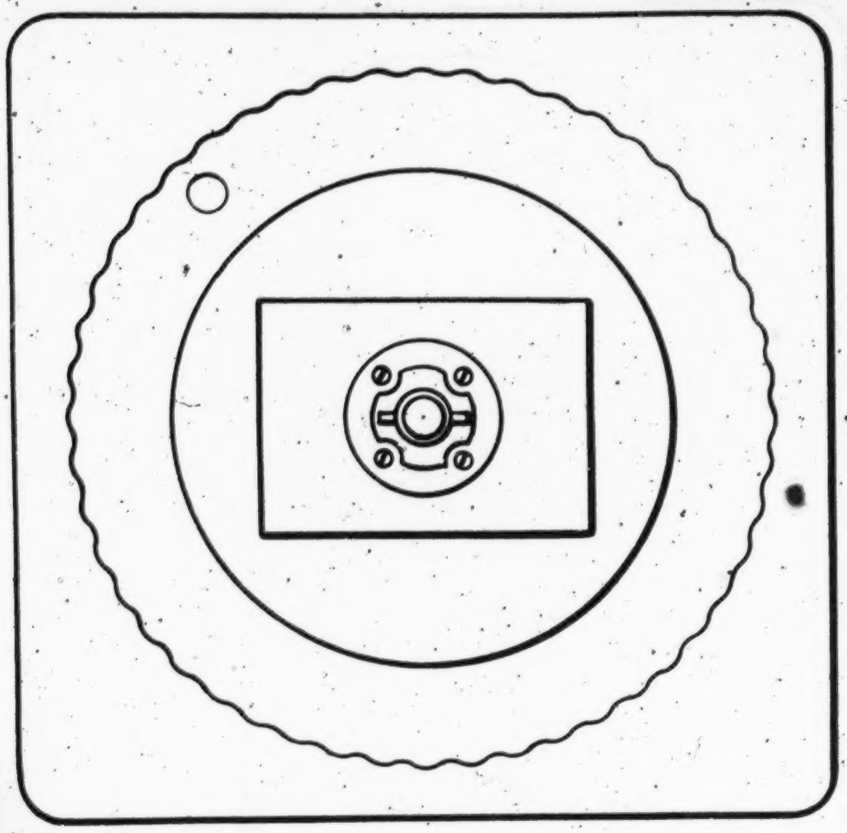


FIG. 1,

DEFENDANT'S
Exhibit No. 39
MF

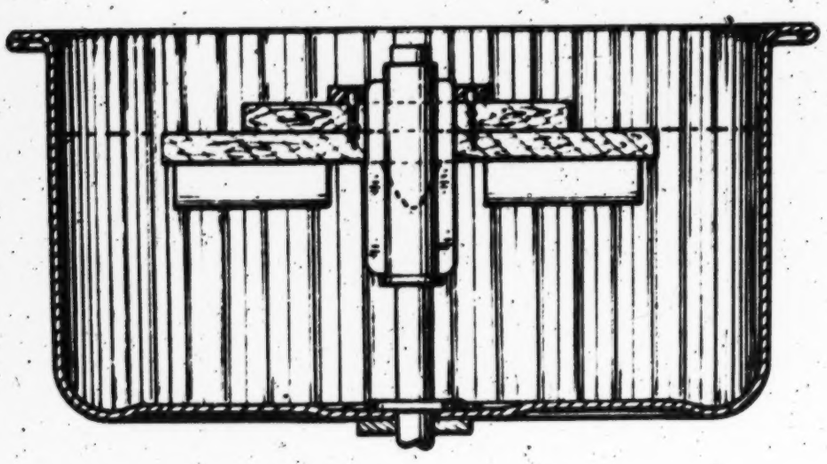


FIG 2,

U.S.D.C. S.D.N.Y.
In Equity No. 75-202
In Equity No. 81-257
DEFENDANT'S EXHIBIT II
Deputy Clerk.

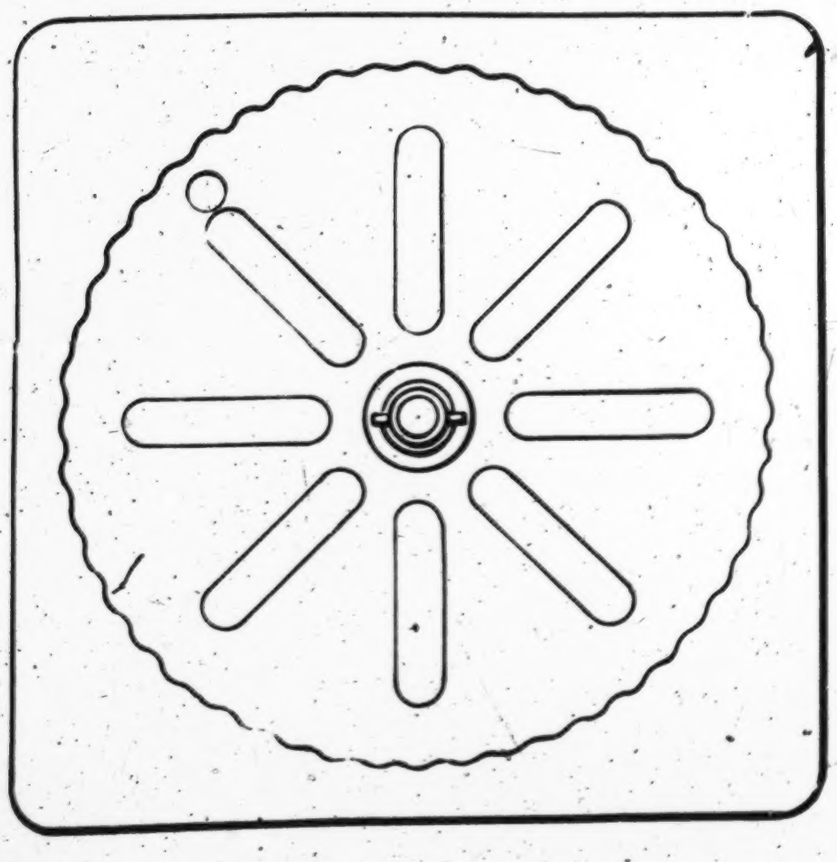
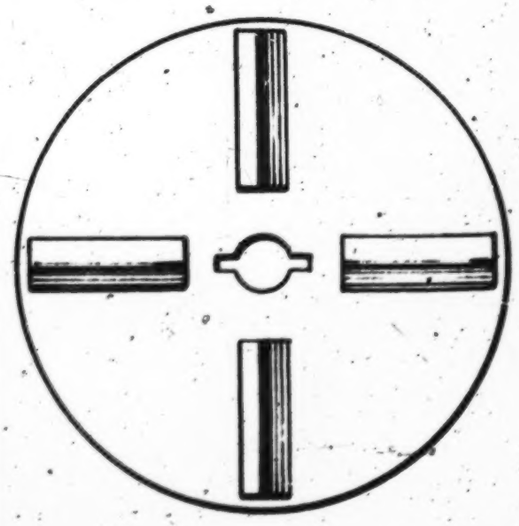


FIG. 3.



11 1

PART OF DEFENDANT'S EXHIBIT 39.
DEFENDANT'S DEPOSITION EXHIBIT 137.

MILLER WASHING MACHINE Defendants Exh No 138

DEFENDANT'S EXHIBIT #22 (SMOOTH TUB)

DEFENDANT'S
Exhibit No. 39
AMF

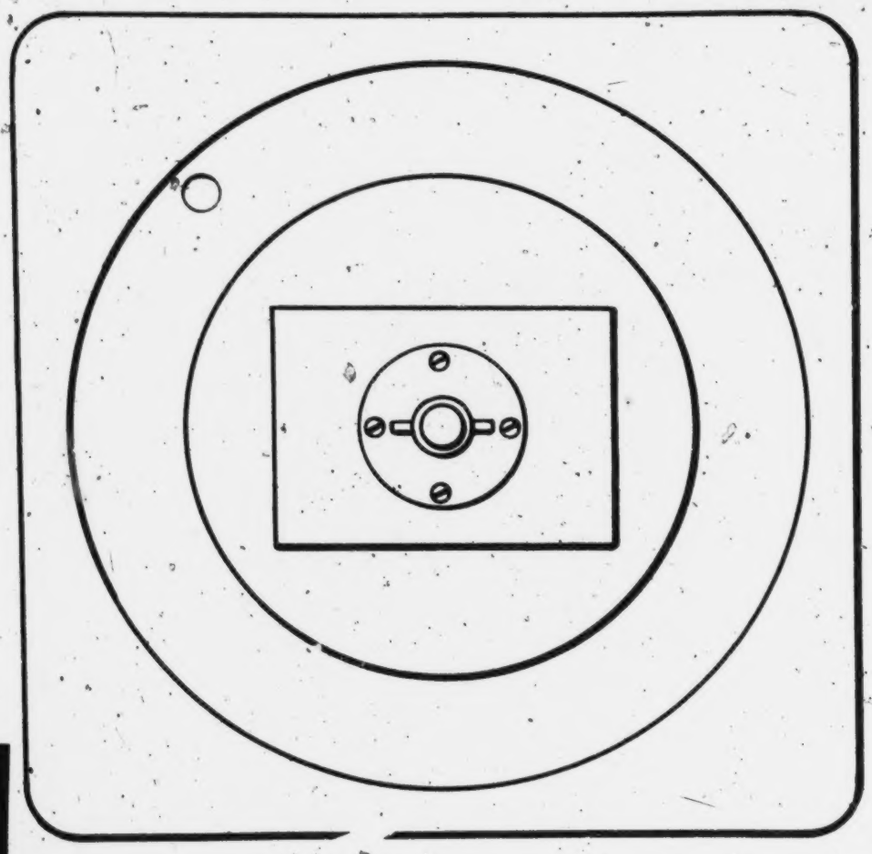


FIG. 1,

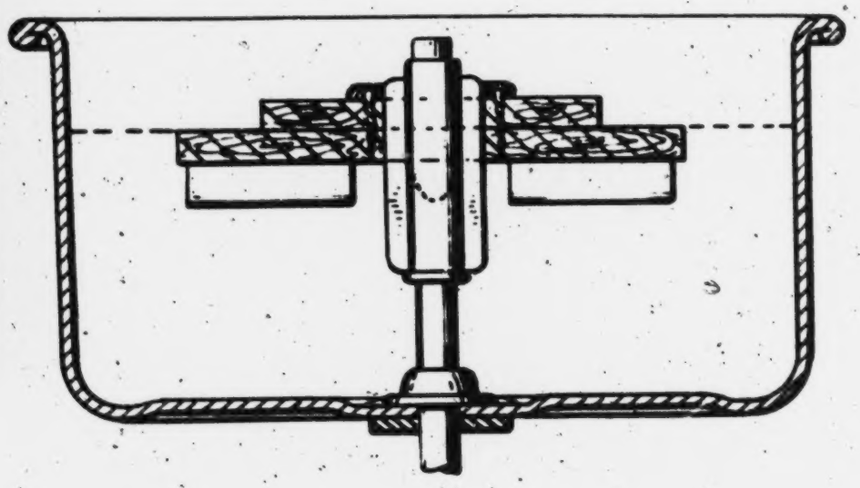


FIG. 2,

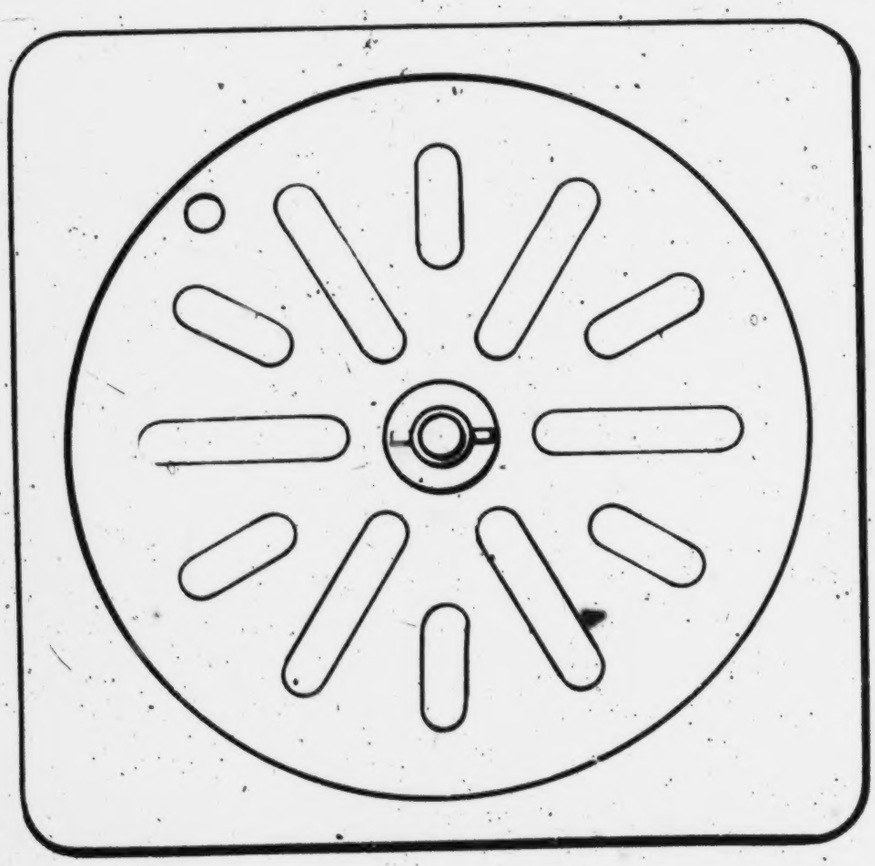
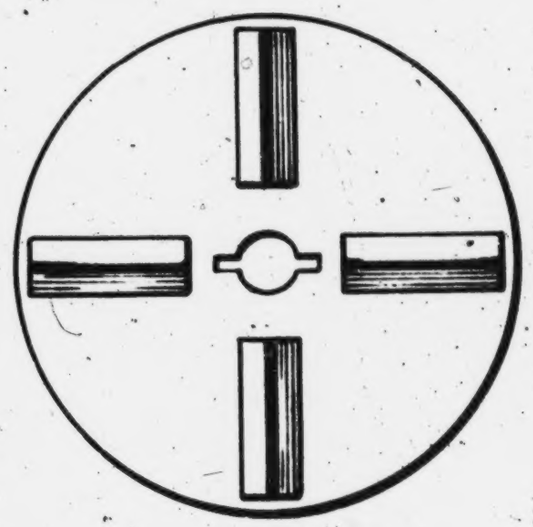


FIG. 3.



U.S.D.C. S.D.N.Y.
In Equity No. 75-202
In Equity No. 81-257
DEFENDANT'S EXHIBIT
Deputy Clerk.

PART OF DEFENDANT'S EXHIBIT 39.
DEFENDANT'S DEPOSITION EXHIBIT 138.

PART OF DEFENDANT'S EXHIBIT 39.
DEFENDANT'S DEPOSITION EXHIBIT B.

1827a Defendant's Exhibit 40.

(Physical)

Lint Agitator

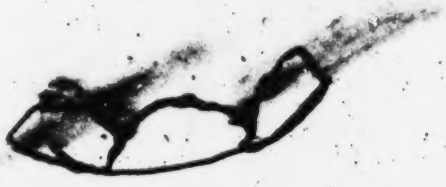
1828 Defendant's Exhibit 41.

(See Separate Binder)

1900 Depositions, Miller Depositions

DEFENDANT'S EXHIBIT 42.

Sketch by Geo. L. Miller of Exhibit 8A Agitator.



U. S. D. C. W. D. Mo. W. D.

THE MAYTAG COMPANY

vs.

GENERAL ELECTRIC SUPPLY CORPORATION

IN EQUITY 2892

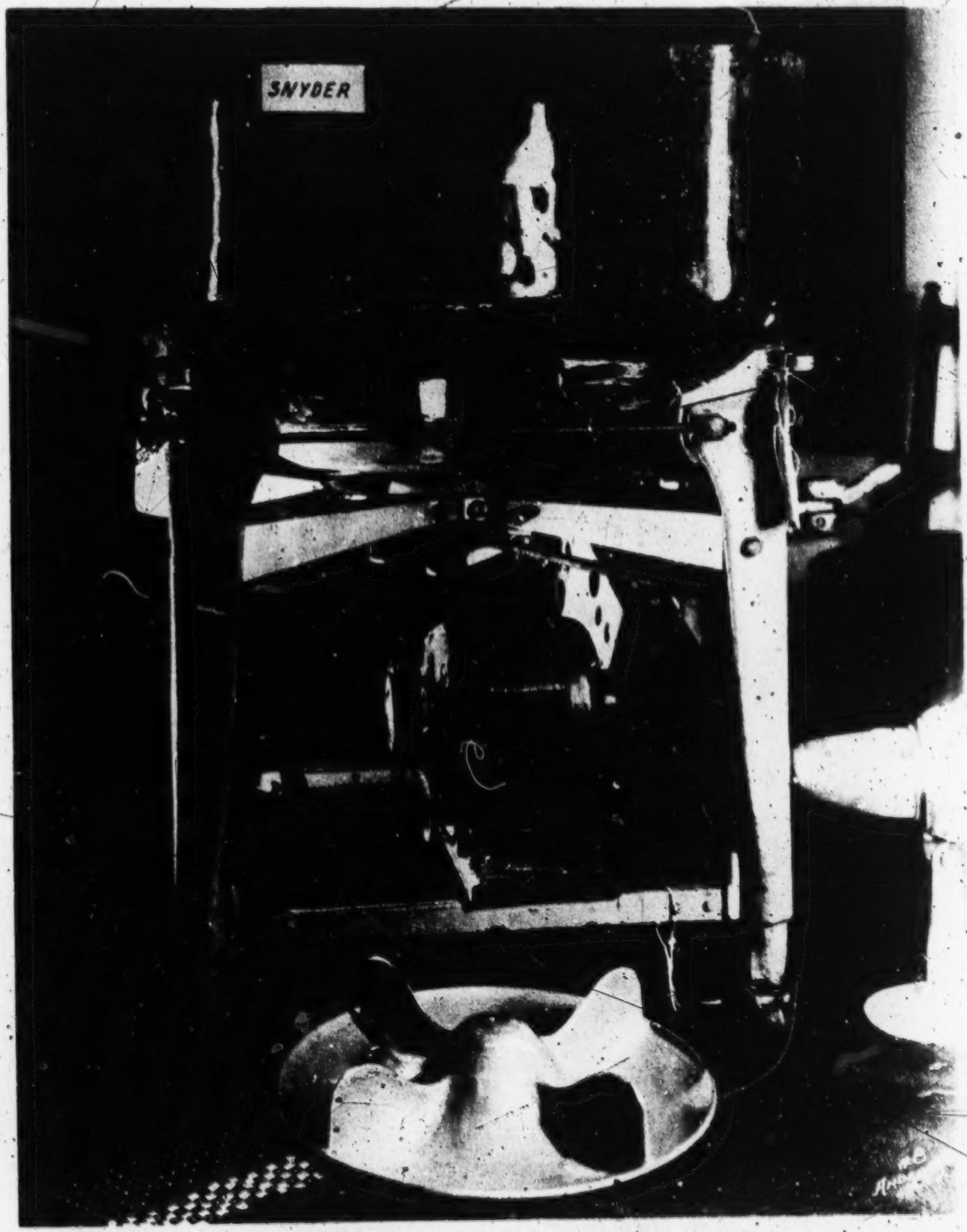
~~DEFENDANTS~~ Defendants EXHIBIT 42

PART OF DEFENDANT'S EXHIBIT 43.

HOTEL BALTIMORE DEMONSTRATION

1. General view of machines demonstrated by defendant at Hotel Baltimore, Nov. 30, Dec. 1, 1937.

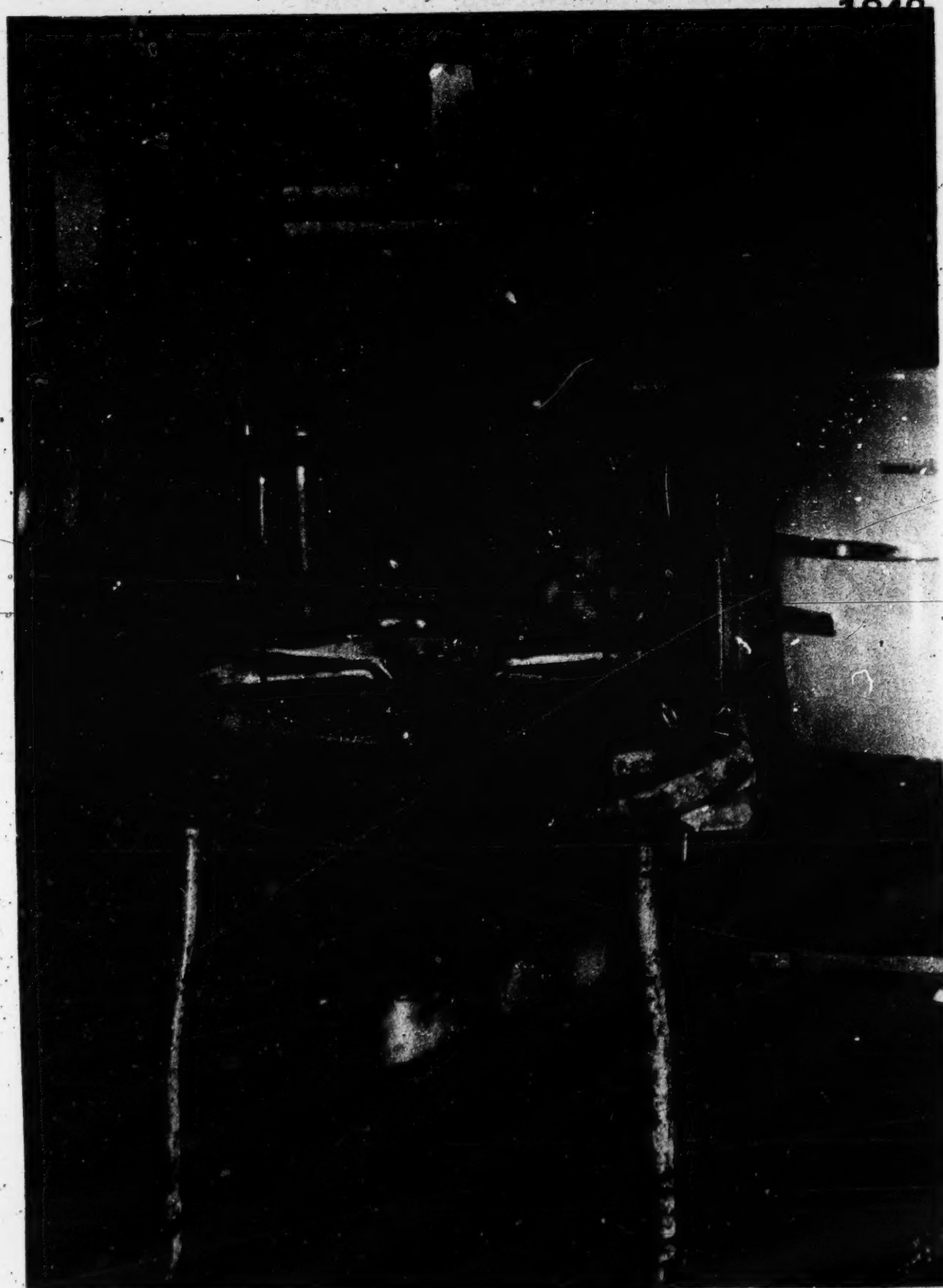
PART OF DEFENDANT'S EXHIBIT 43.



2. DEFENDANT'S EXHIBIT 14.

Snyder Glass tub machine and agitator.

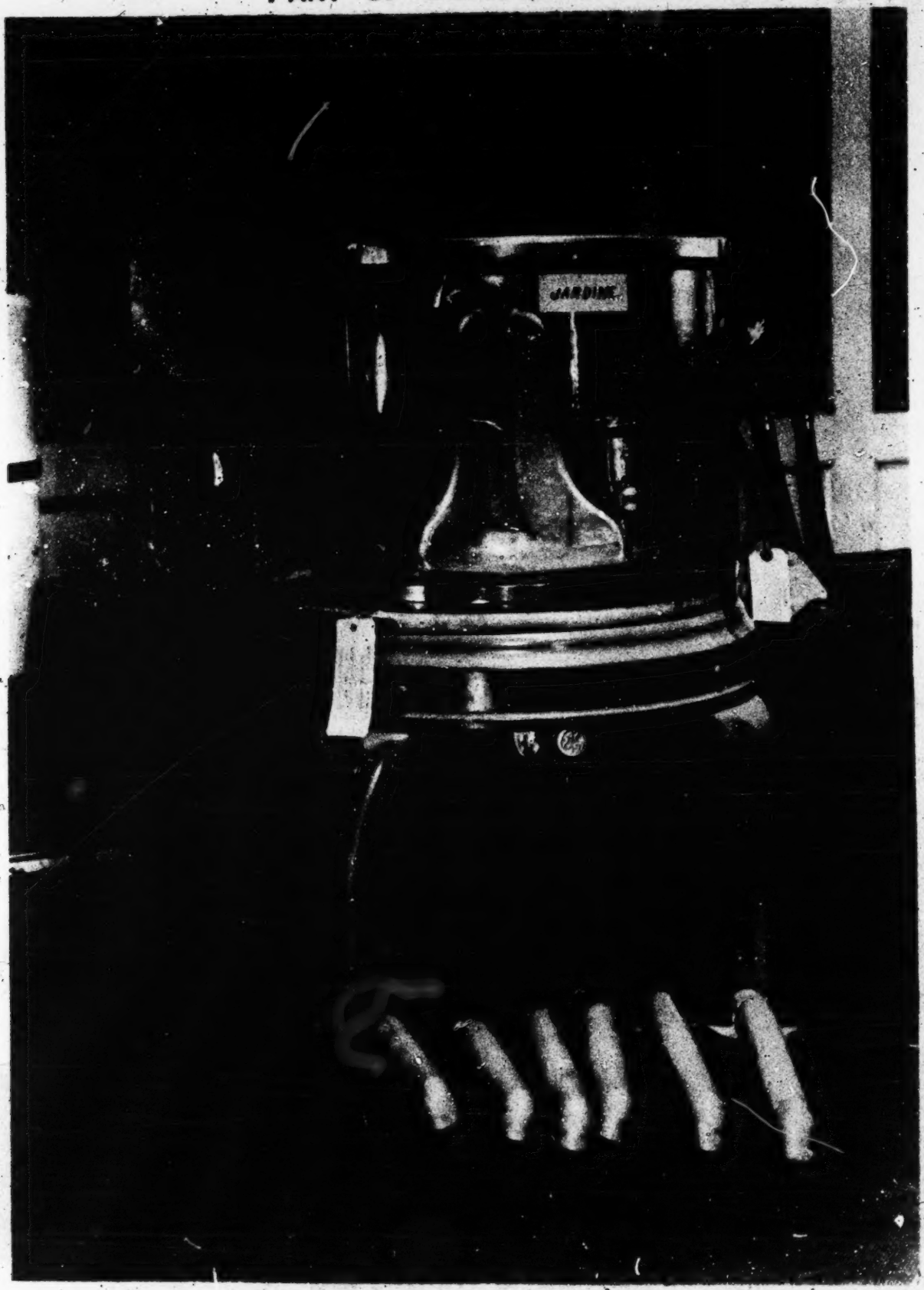
PART OF DEFENDANT'S EXHIBIT 43.



3. DEFENDANT'S EXHIBIT 15.

Doughty & Davis celluloid tub washing machine, 1900 Form 4.

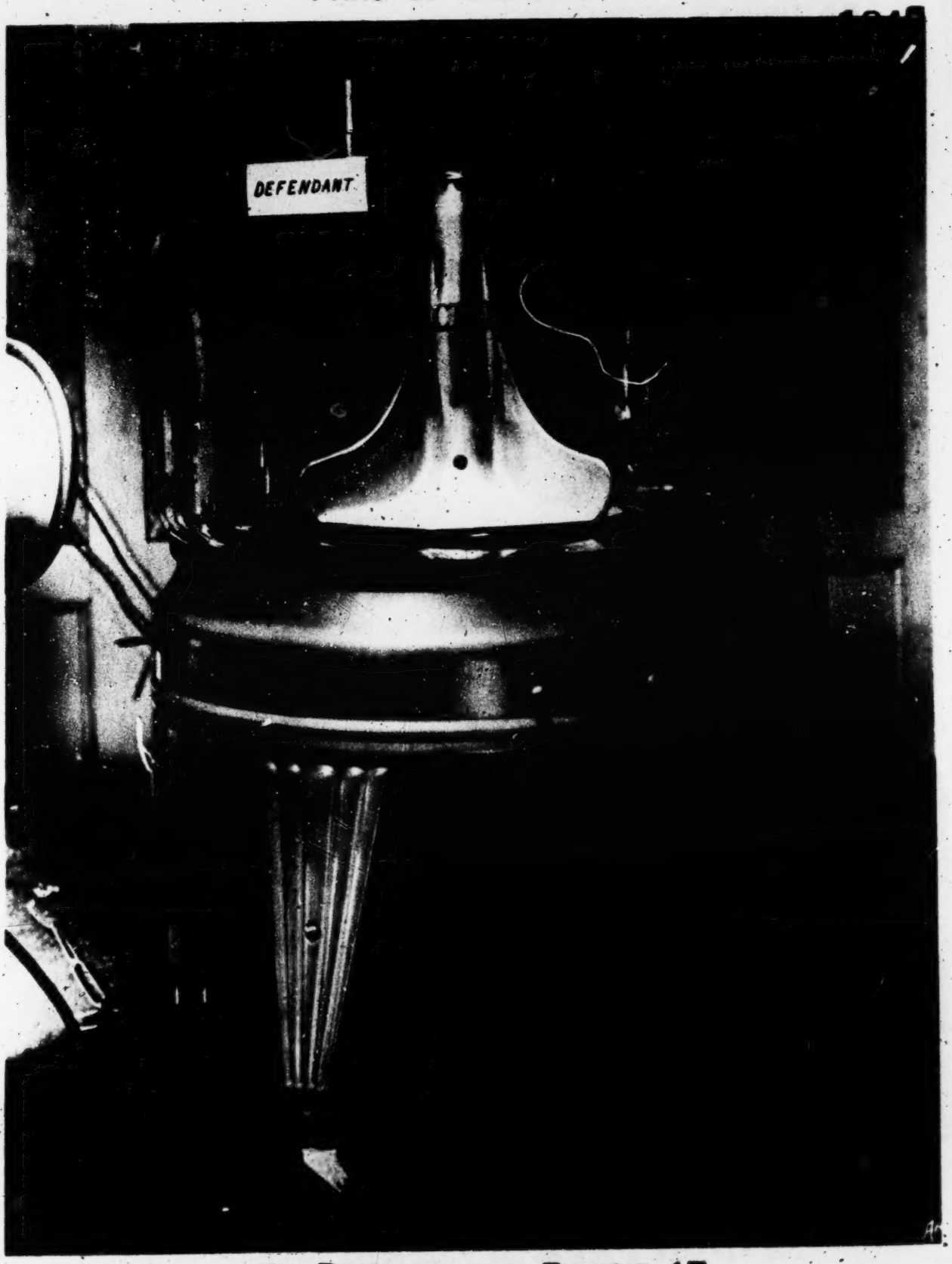
PART OF DEFENDANT'S EXHIBIT 43.



4. DEFENDANT'S EXHIBIT 16.

Jardine glass tub washing machine and baffles.

PART OF DEFENDANT'S EXHIBIT 43.



5. DEFENDANT'S EXHIBIT 17.

General Electric glass tub washing machine, Model AW-19.

PART OF DEFENDANT'S EXHIBIT 43.

6. DEFENDANT'S EXHIBIT 18.

Glass tub machine for overhead agitators and agitators demonstrated therein.

Snyder overhead agitator - Defendant's Exhibit 22.
Miller floating agitator - from Defendant's Exhibit 19.
Davis floating agitator - Defendant's Exhibit 21.

PART OF DEFENDANT'S EXHIBIT 43.

7. DEFENDANT'S EXHIBIT 23.

Glass tub variable speed machine.

8. DEFENDANT'S EXHIBIT 20.

Davis 1900 Form 3 smooth copper tub washing machine, sold Jan. 1, 1920, (Defendant's Deposition Exhibit 103).

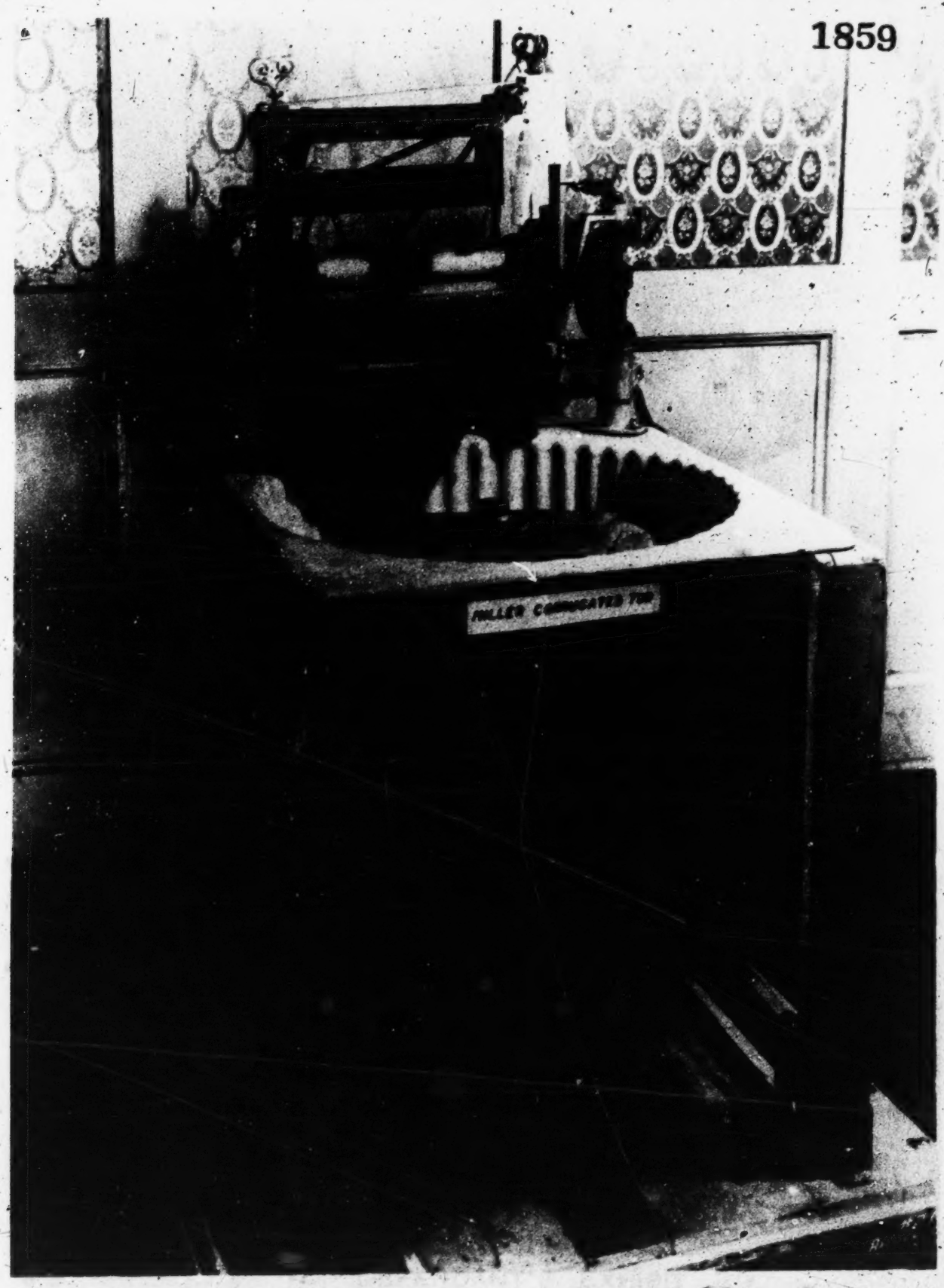
PART OF DEFENDANT'S EXHIBIT 43.

9. DEFENDANT'S EXHIBIT 24.

Washing machine described in Morse patent 106,853.

10. DEFENDANT'S EXHIBIT 19.

W. S. Miller smooth tub washing machine sold in 1919, (Defendant's Deposition Exhibit 22).



11. DEFENDANT'S EXHIBIT 28.

W. S. Miller corrugated tub washing machine sold in 1916, (Defendant's Deposition Exhibit 21).

PART OF DEFENDANT'S EXHIBIT 43.

12. DEFENDANT'S EXHIBIT 29.

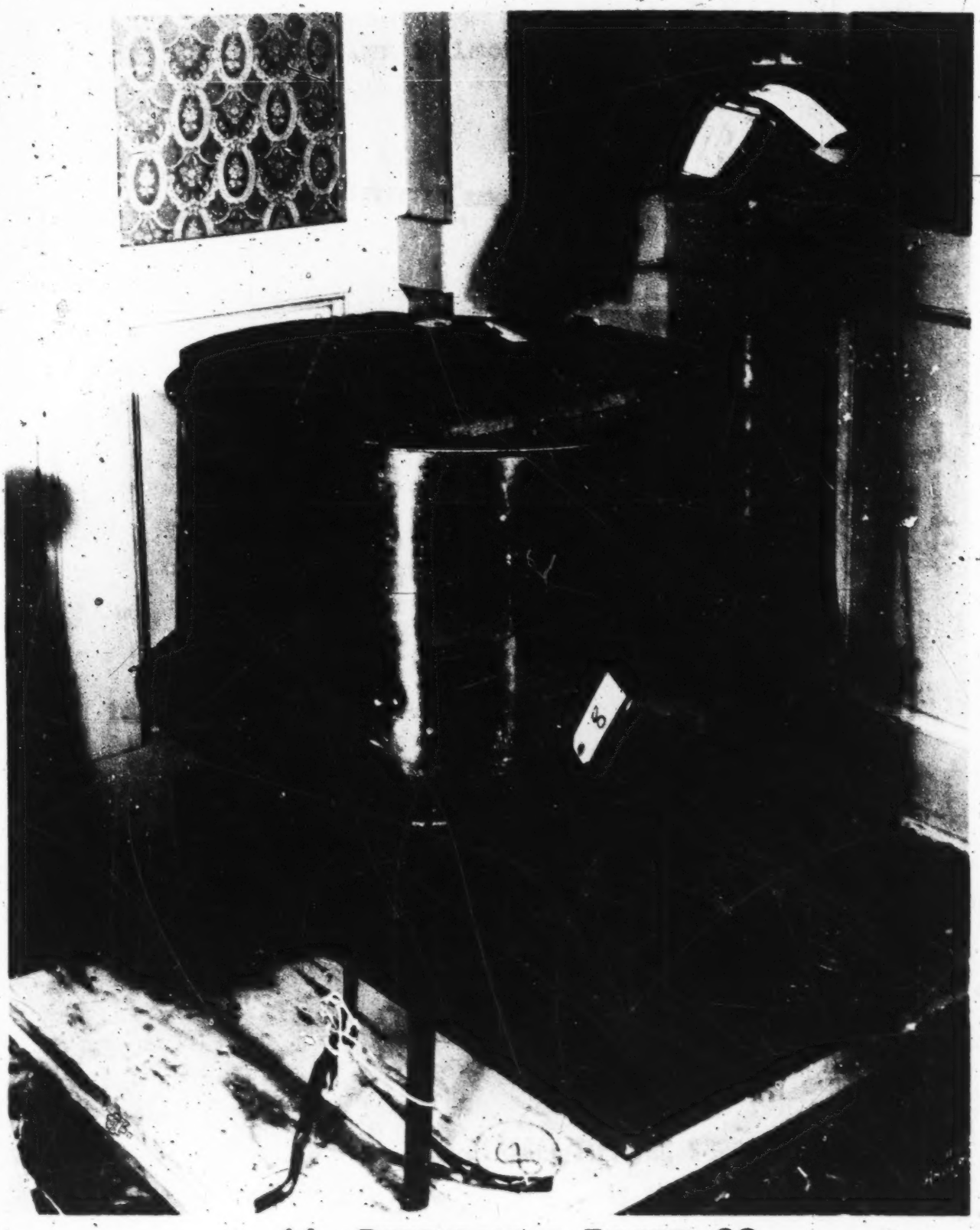
Doughty & Davis 1900 Form 4 washing machine shipped Jan. 18, 1922 on order dated Nov. 25, 1921, (Defendant's Deposition Exhibit 4).

13. DEFENDANT'S EXHIBIT 27.

Davis 1900 Form 1 washing machine, (Defendant's Deposition Exhibit 2A).

1895

PART OF DEFENDANT'S EXHIBIT 43.



14. DEFENDANT'S EXHIBIT 30.

1900 experimental model washing machine, (Defendant's Deposition Exhibit 8.

1
8
6
5

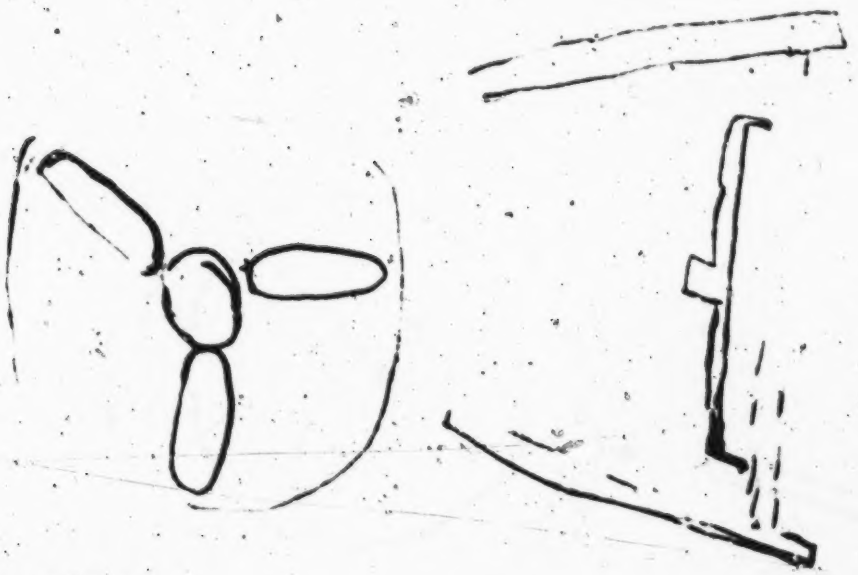
1867

DEFENDANT'S EXHIBIT 44.

Page 2658 Brooklyn Edison Record, Stephen Sketch.

2658

PLAINTIFF'S EXHIBIT 175-A



4 142A

U. S. D. C. W. D. Mo. W. D.

THE MAYTAG COMPANY

vs.

GENERAL ELECTRIC SUPPLY CORPORATION

IN EQUITY 2892

DEFENDANTS EXHIBIT 44

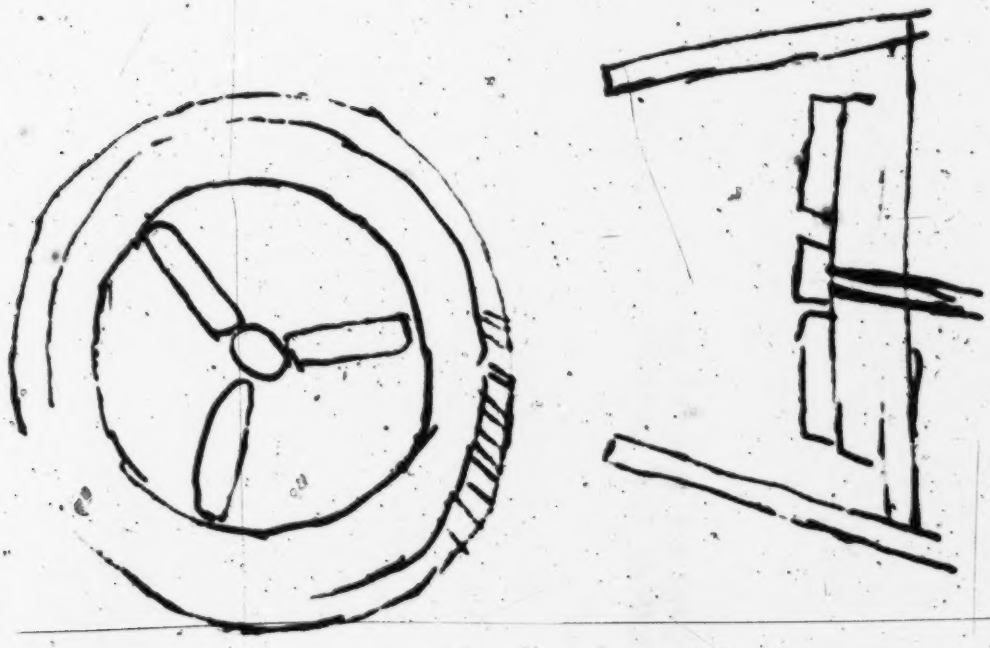
1867

1869

DEFENDANT'S EXHIBIT 45.

Page 2659, Brooklyn Edison Record, Stephen Sketch.

2659



4 1428

U. S. D. C. W. D. Mo. W. D.

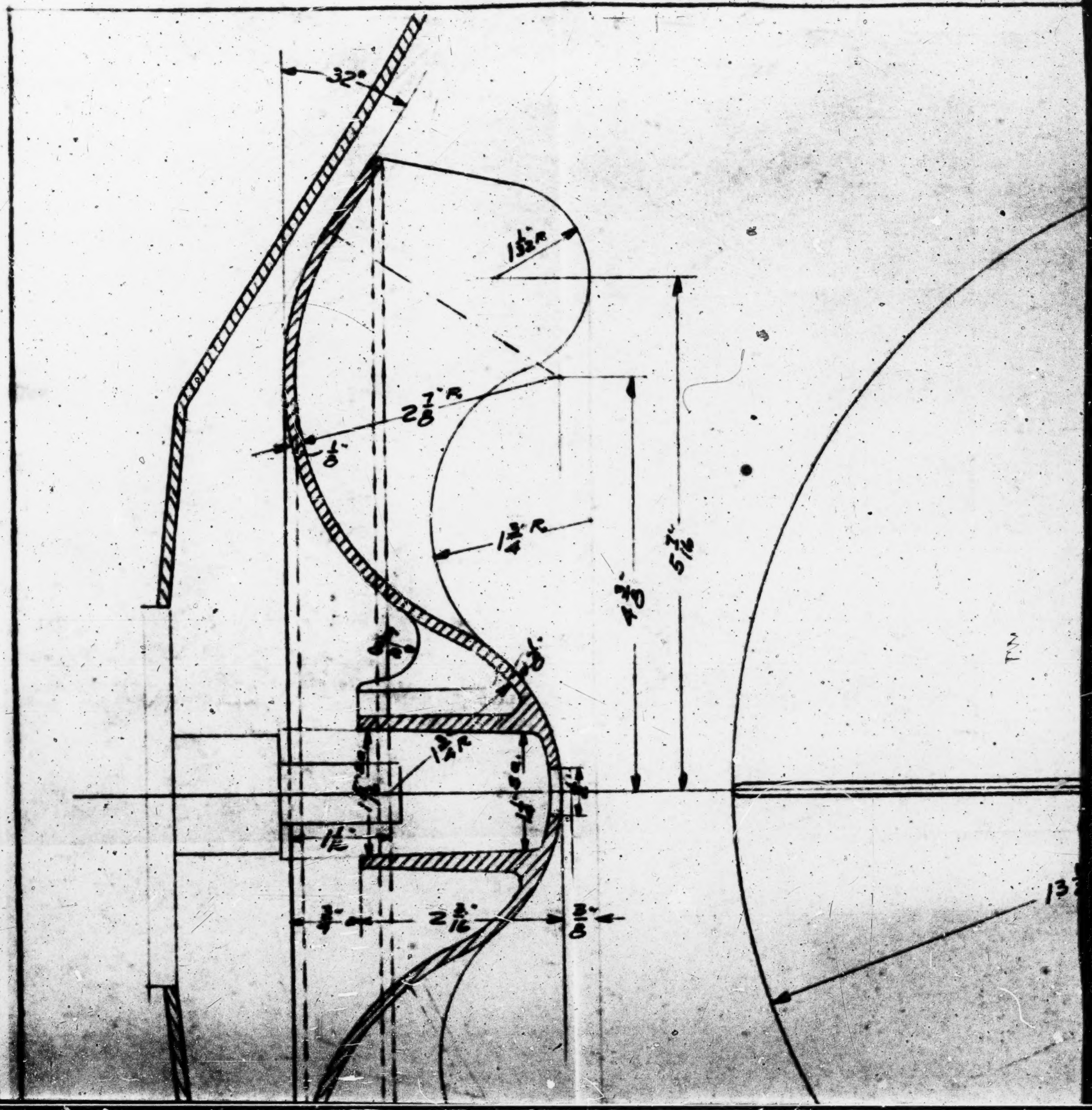
THE MAYTAG COMPANY

vs.

GENERAL ELECTRIC SUPPLY CORPORATION

IN EQUITY 2392

DEFENDANTS EXHIBIT 45


32°
1 1/32" R
2 7/8" R
1/8"
1 3/4" R
4 3/4"
5 1/2"
1 1/2" R
1/2"
3/4"
2 1/16"
3/8"

DEFENDANT'S EXHIBIT 46 A.

U. S. D. C. W. D. WASH. W.

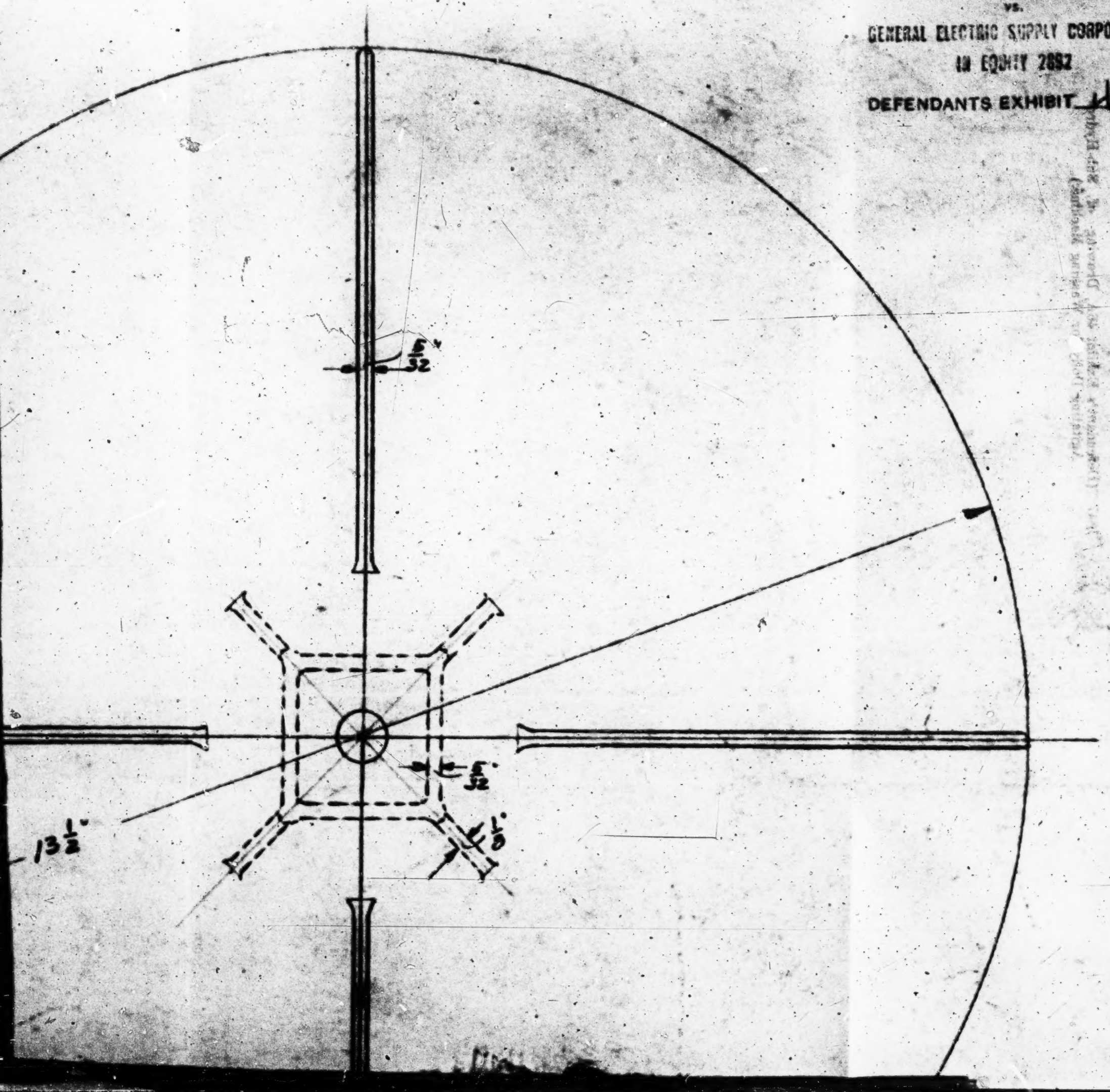
THE MAYTAG COMPANY

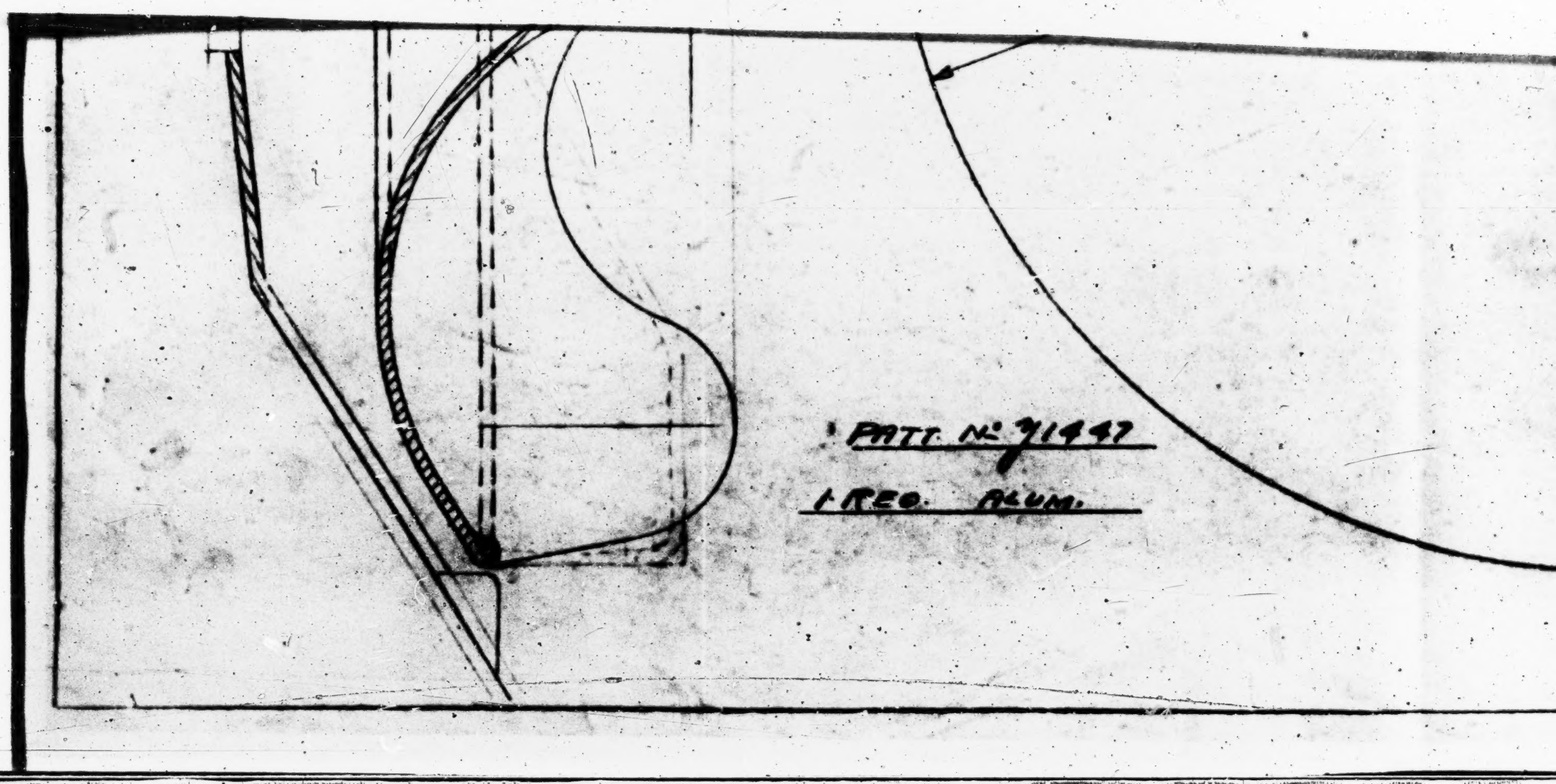
vs.

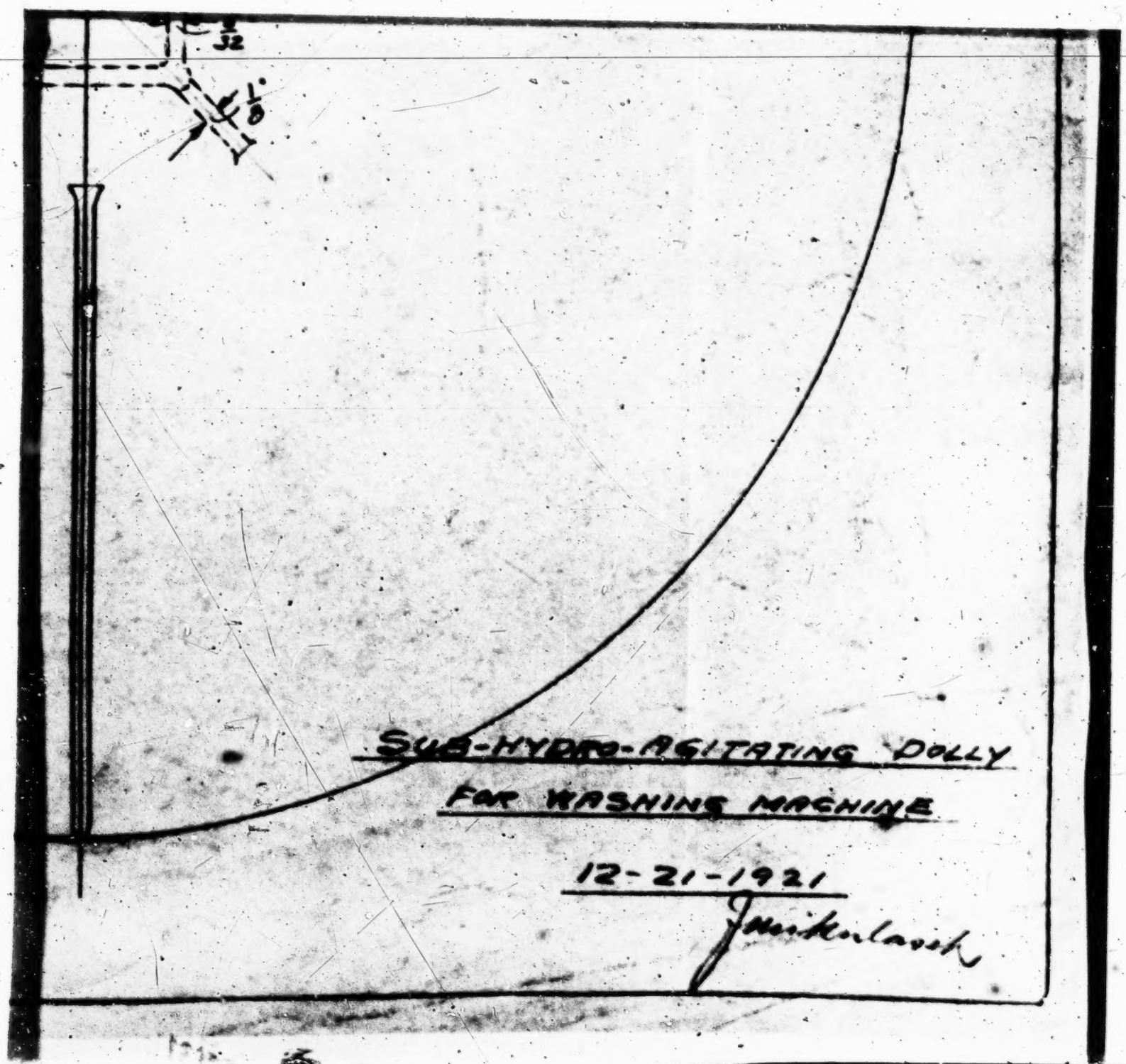
GENERAL ELECTRIC SUPPLY CORPORATION

IN EQUITY 2852

DEFENDANTS EXHIBIT 46A




PAT'T. No. 71447
1 REG. ALUM.


SUB-HYDRO-AGITATING DOLLY
FOR WASHING MACHINE
12-21-1921

U. S. D. C. W. D. Mo. W. D.

THE MAYTAG COMPANY

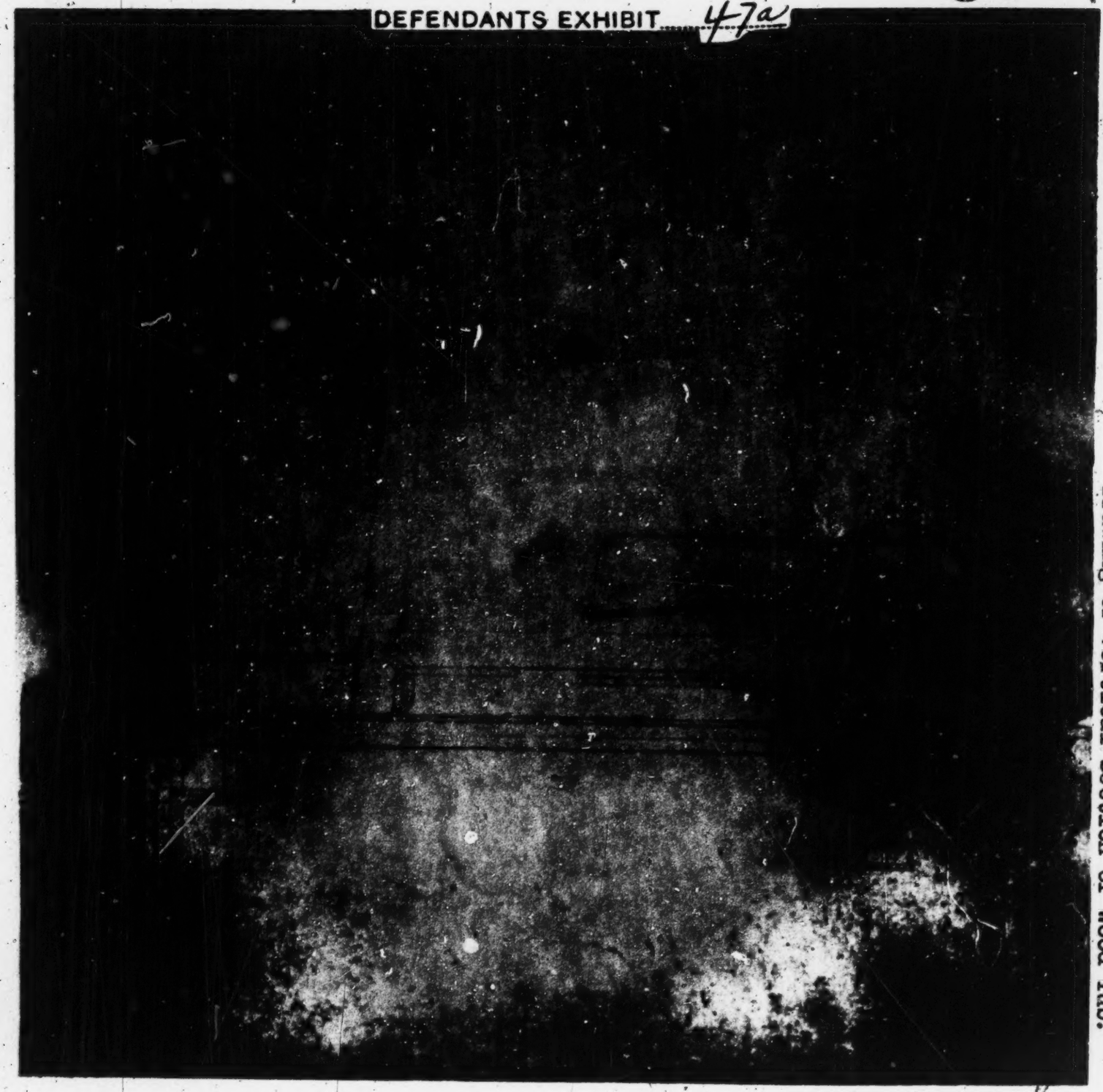
vs.

GENERAL ELECTRIC SUPPLY CORPORATION

IN EQUITY 2892

⑦

DEFENDANTS EXHIBIT 47a



DEFENDANT'S EXHIBIT 47A.

Drawing of Vertical Section of Wood Tub.

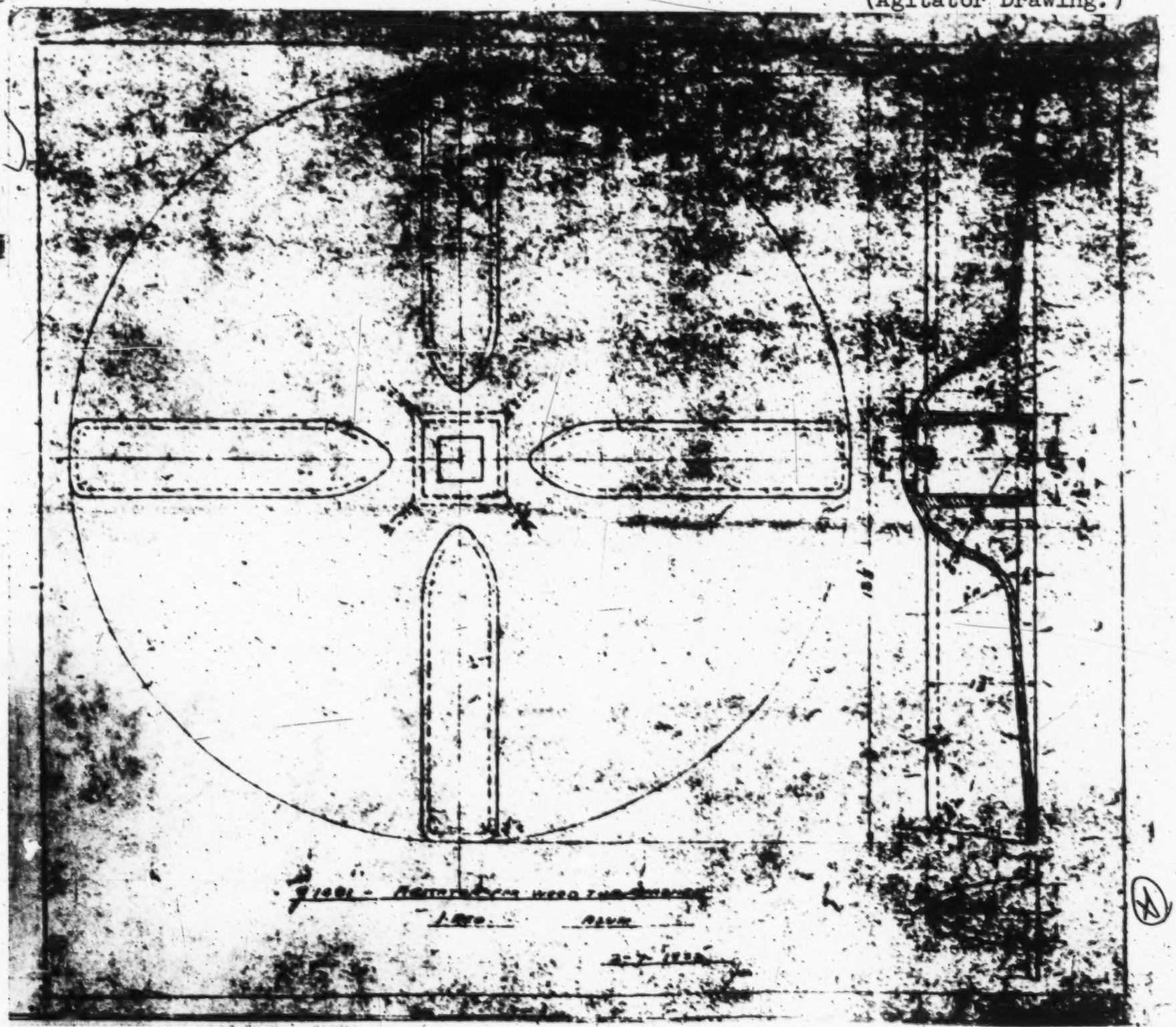
3708

DEFENDANT'S EXHIBIT 47B.

Drawing Plan View, Wood Tub.

DEFENDANT'S EXHIBIT 48.
(Agitator Drawing.)

DEFENDANT'S
Exhibit No. 48
FILED



1851 (Defendant's Exhibit 49, Letters Patent No. 1,459,483 to C. C. Unruh, June 19, 1923.)

June 19, 1923. 1,459,483

C. C. UNRUH

DOLLY FOR WASHING MACHINES

Filed Jan. 22, 1923

Fig 1

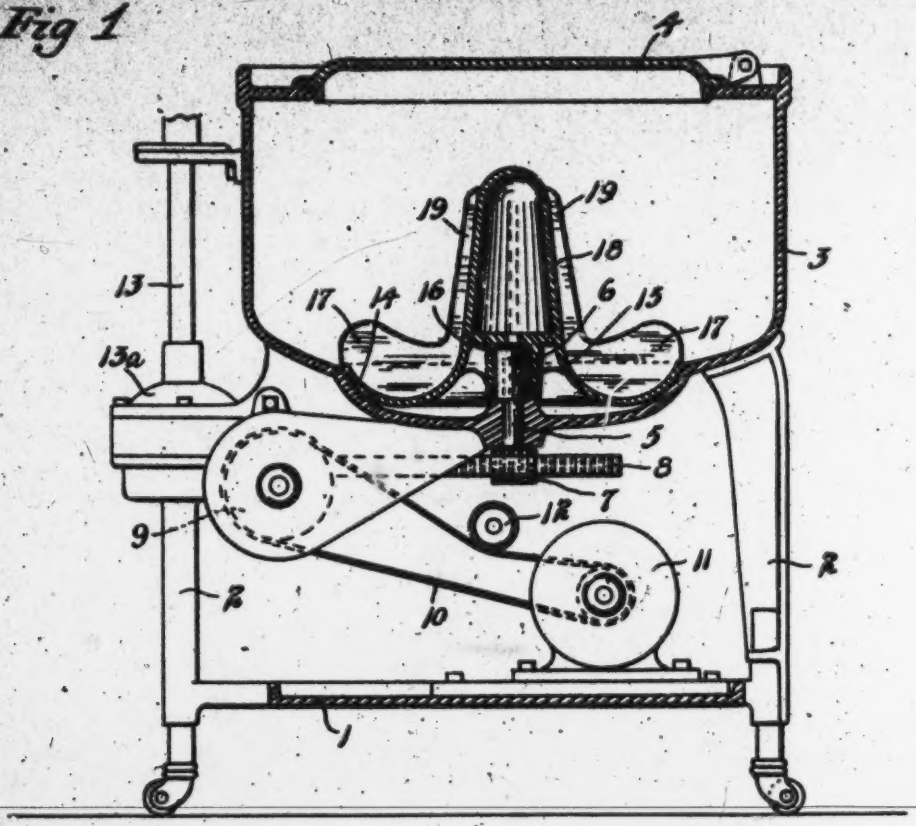


Fig. 2.

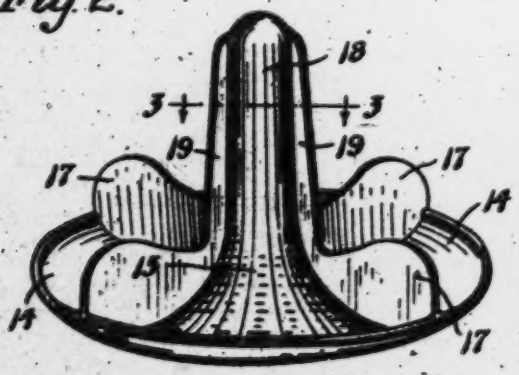
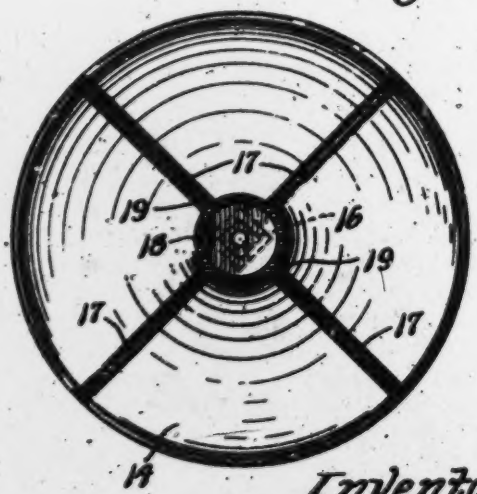


Fig. 3.



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James F. Williamson

UNITED STATES PATENT OFFICE.

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1881

DOLLY FOR WASHING MACHINES.

REISSUED

Application filed January 23, 1923. Serial No. 614,183.

To all whom it may concern:

Be it known that I, CORNELIUS C. UNRUH, a citizen of the United States, residing at Freeman, in the county of Hutchinson and State of South Dakota, have invented certain new and useful Improvements in Dollies for Washing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a washing machine and particularly to that type of machine in which the articles to be washed are contained in a receptacle having a moving member or dolly therein for agitating the articles and water. The invention is especially directed to a novel form of such moving member or dolly. In the type of machine disclosed, it has heretofore been the practice to use a dolly which was oscillated or gyrated on a central spindle, which dolly comprised a dish-shaped member having a central upstanding hub portion therein, thus forming an annular trough which was traversed by vertical blades. Such a type of dolly was and is being used in the well known Maytag washing machine which is now upon the market. It has been found by experience that with such a dolly the clothes tend to accumulate in a knot or tangle above the dolly and by means of the present invention this objectionable action has been overcome.

It is an object of this invention, therefore, to provide a washing machine dolly or agitating member of the movable type which will efficiently agitate the water and clothes and yet will not cause any objectionable action thereof.

It is a further object of the invention to provide such a dolly comprising a central upstanding stem having radial ribs projecting therefrom and extending along the sides thereof.

It is more specifically an object of the invention to provide such a stem preferably of cylindrical form, the surface of which merges into the surface of the dish-shaped dolly and the ribs on which are integral and continuous with the ribs extending across the dish-shaped portion of the dolly.

These and other objects and advantages of the invention will more fully appear from the following description made in connection with the accompanying drawings in which like reference characters refer to the same parts throughout the different views, and in which,

Fig. 1 is a view partly in elevation and partly in central vertical section of one type of washing machine showing the invention applied thereto;

Fig. 2 is a perspective view of the dolly detached from the machine; and

Fig. 3 is a horizontal section of the dolly taken substantially on the line 3—3 of Fig. 2.

Referring to the drawings, in Fig. 1 a washing machine is shown comprising a frame having a base plate 1 with legs 2 projecting upwardly therefrom, being provided with casters at their lower ends. A receptacle 3 adapted to contain water and the articles to be washed is mounted upon the legs 2 and, as shown, is provided with a hinge cover 4 at the top thereof. The lower portion of the receptacle 3 is provided with a dish-shaped recess having a central hub in which is journaled a driving shaft 5 having an angularly-shaped portion 6 extending upwardly into the receptacle and having a pinion 7 secured to its lower end. The pinion 7 is arranged to mesh with a rack member 8 which is reciprocated by being attached at one end to a crank disk driven from a pulley 9 indicated in dotted lines in Fig. 1, which pulley is, in turn, driven by a belt 10 from a suitable motor 11 secured to the base 1. A tightening pulley 12 for said belt is also illustrated. A driving shaft 13 extends upwardly from certain gearing enclosed in a casing 13ª for the purpose of driving a wringer which will be attached to the machine. The driving mechanism forms no part of the present invention and is merely illustrated to show how the dolly member is driven.

The dolly member, as illustrated, comprises a cup-shaped or dish-shaped member 14 of a size and form to be disposed substantially in the recess in the bottom of the receptacle 3. The member 14 has an upstanding central portion 15 at the center thereof, the vertical elements of which are concave so that the surface thereof merges into the surface of the member 14 and forms, in effect, an annular trough. The underside of the portion 15 is provided with a sleeve or hub 16 having an angular recess therein so that said sleeve is adapted to fit over the angular portion 6 of the shaft 5, and be sup-

ported on the central hub at the bottom of the receptacle 3. A plurality of radial ribs 17 of lobe shape formation extend across the surface of the members 14 and 15 having their wider and curved ends disposed outwardly and rising above the outer edge of the member 14. A stem 18 is shown projecting upwardly from the portion 15 and centrally thereof, which stem is illustrated as circular in cross section although the same may be made of any other shape in cross section, if desired. The surface of the stem member is continuous with the surface of the member 15 and, as illustrated, said stem is substantially cylindrical having a slight upward taper. Said stem is provided with radially projecting rib or wing members 19 of small thickness, which ribs extend along the sides of said stem and increase in radial thickness slightly toward the lower end thereof, said lower ends merging into the inner ends of the ribs 17 so that the two form, in effect, one continuous rib. As clearly shown in Figs. 1 and 3, the stem portion 18 is preferably formed hollow and the dolly may be made of any suitable material, preferably metal.

In the operation of the machine, the motor 11 is operated and power transmitted through the described gearing to reciprocate the rack 8. This rack being held in engagement with the pinion 7 the dolly member is given an oscillating movement, thus agitating the water and articles in the receptacle 3. By providing the upwardly projecting stem 18 with its ribs 19, the clothes are kept distributed in the trough formed about the dolly and do not become tangled in a central wad or knot as in the dollies heretofore used which were not provided with said stem.

It is seen, therefore, that the applicant has provided a simple and efficient form of dolly and one constituting a great improvement on those previously used. The change in the dolly does not add appreciably to the cost thereof or the difficulty of making and the improved dolly can readily be substituted for the old form.

The invention has been demonstrated in actual practice and found to be very successful and efficient for the purpose intended.

It will, of course, be understood that various changes may be made in the form, details and proportions of the parts without departing from the scope of applicant's invention, which, generally stated, consists in the matter shown and described and set forth in the appended claims.

What is claimed is:

1. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle comprising a dish-shaped member and a substantially cylindrical stem rising from and merging into the central portion thereof and terminating in an upper rounded end, said stem having spaced ribs extending vertically along its sides upwardly tapered throughout the length of said stem and extending outwardly across the dish-shaped member.

2. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle comprising a dish-shaped member and a substantially cylindrical stem rising from and merging into the central portion thereof and terminating in an upper rounded end, and spaced ribs extending from the top of said stem vertically downward and outwardly and upwardly across said dish-shaped member and having substantially semi-circular outer edges.

3. A dolly for a washing machine comprising a cup-shaped disk with a frusto-conical portion rising from its center having a substantially cylindrical stem projecting centrally thereabove and terminating in a rounded top, said stem having radial ribs projecting therefrom and extending along the sides thereof, said ribs being tapered throughout their length of said stem and extending in lobe-shaped form across the surface of said disk.

4. The structure set forth in claim 2, the lower portion of said semi-circular edges being substantially continuous with the surface of said dish-shaped member.

5. An agitating member for a washing machine comprising a cup-shaped disk having a frusto-conical portion rising from the center thereof, the vertical elements of which are concave so that the surface of said portion merges into the surface of said disk, and a round upwardly tapering portion projecting above said frusto-conical portion and terminating in a rounded surface, and narrow radial wings projecting from said latter portion and extending along the sides thereof and across the surface of said disk and having rounded outer edges merging into the concave surface of said disk.

6. A dolly for a washing machine comprising an annular trough a stem rising centrally from said trough and having a plurality of circumferentially spaced radial wings projecting therefrom and extending along its sides and across the surface of said trough the top surface of said wings above said trough curving downwardly and inwardly.

7. A dolly for a washing machine comprising a dish-shaped member and a rounded stem rising from and merging into the central portion thereof and terminating in an upper rounded end, spaced ribs extending vertically along said stem and merging

into the upper rounded end thereof and extending across the dish-shaped member at the lower ends in lobe-shaped form whereby the upper surfaces thereof above said member are concave.

8. A dolly for a washing machine adapted to be disposed in a liquid containing receptacle with its top portion well below the top of said receptacle comprising a circular disk-like member having a stem rising from and merging into its central portion, and ribs extending vertically from the upper end of said stem downwardly therealong and across the surface of said disk-like member.

9. A rotatable dolly for a washing machine adapted to be disposed in a liquid containing receptacle comprising a dish-shaped member having a central upstanding tapered stem with a rounded upper end, ribs extending across said dish and upwardly along the side of said stem and having rounded upper edges merging into the rounded surface of said stem.

In testimony whereof I affix my signature

CORNELIUS C. UNRUH.

1883